



2015

AGRICULTURAL FINANCE YEAR BOOK

Innovations and Research in Agricultural Finance



BANK OF UGANDA, MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES
AND ECONOMIC POLICY RESEARCH CENTER

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Table of Contents

Foreword

Disclaimer

1		Policy 1.1 Trends in Agricultural Lending and Leasing in 2014 (Robert Ocaya and Julian Kiwuwa) 03 1.2 Agricultural Credit Facility (ACF) Update (Rosette Bamwine and Winnie Muliisa) 09 1.3 Current Strengths and Weaknesses with Warehouse Receipts (Christian Baine) 13 1.4 Some Fiscal Issues in Funding Public Sector Investment in the Agricultural Sector (Ibrahim Kasirye) 25
2		Innovations and Research 2.1 The One Acre Fund In Uganda and Kenya (Janina Schnick and Hilda Poulson) 33 2.2 SmartMoney – Mobile Finance for Rural Communities (Michael Rothe) 40 2.3 Financial Literacy Training in Support of Use of Financial Services (Ali Taha and Teddy Ndagire) 45 2.4 Segmentation of Farm Households in Uganda: Preliminary Research Results (Jamie Anderson) 56 2.5 Pre-selling of Coffee by Growers (Anika Schmidt) 70
3		Value Chains and Contract Farming 3.1 Contract Farming in the Ugandan Sugar Industry (Ibrahim Okumu) 84 3.2 Value Chain Financing in the Irish Potato Industry (Mildred Barungi and Francis Mwesigye) 95 3.3 Boosting Investments in the Chili Value Chain (Asaph Besigye) 103 3.4 Update on Cage Fish Farming Investments in Uganda (Maurice Ssebisubi) 112
4		Lending for Agricultural Investment: Some Issues 4.1 Risk Mitigation Measures by Farmers and by Banks (Julius Segirinya) 123 4.2 Bankability Issues with Agri-business Borrowers (Asaph Besigye) 132

	List of Abbreviations and Acronyms	140
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	Imprint	146
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Foreword

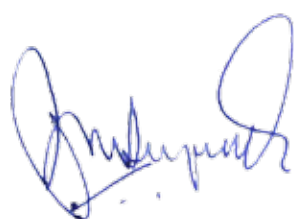
The 2015 *Agricultural Finance Yearbook*, which is the eighth edition in the series, analyses the challenges faced by farmers and those involved in providing finance at both the overall sectoral level and in specific industries within the sector.

The first chapter of the Yearbook includes an analysis of the impact of fiscal policy on the agricultural sector. An important lesson of this analysis is that tax exemptions for agriculture have not been effective in supporting farmers. The agricultural sector, and especially smallholder farmers which dominate agriculture in Uganda, require support from the government, but given the scarcity of budgetary resources, it is imperative that public spending is allocated efficiently to those public goods and services which will yield the highest social returns.

The second chapter of the Yearbook reports on the results of research into recent innovations in support for smallholder farmers and the provision of rural finance. One of the important findings in this chapter is that the smallholder sector could achieve substantial gains in yields and incomes if it receives a comprehensive package of support, covering both production and post harvest storage and handling.

Chapter 3 looks at contract production and value chains, focusing on sugar, Irish potatoes and chili. The structure and organisation of the value chains for these three crops differs greatly and this is reflected in the different opportunities for farmers to access financial services. Finally, Chapter 4 looks at how farmers and financial institutions can mitigate the risks that they face. The design of risk mitigation measures must take account of the specific characteristics of agricultural value chains.

We commend the Yearbook series to everyone working in, or with an interest in, the agricultural sector in Uganda.



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Disclaimer

This Agricultural Finance Year Book should not be reported as representing the views of the Bank of Uganda or the Ministry of Agriculture, Animal Industries and Fisheries, on policy or on other matters. The articles in the book describe research by the author(s) on recent trends and innovation in agricultural finance. Thus the views expressed in this book are strictly those of the author(s).





1

Policy



1.1 TRENDS IN AGRICULTURAL LENDING AND LEASING IN 2014¹

Editors' Note:

The information on advances to agriculture by regulated financial institutions was compiled and presented in the 2007, 2008, 2009, 2010, 2011, 2012 and 2013-14 editions of the Agricultural Finance Yearbook. This, the 2015 Agricultural Finance Yearbook, is the 8th edition and builds on the previous work.

*The format used for the compilation of the data has not changed. That is, it tracks the **new advances** to the agricultural sector rather than the outstanding portfolio. This approach provides a more dynamic view of movements in lending to the agricultural sector. As with the previous three editions, the information on leases to the agricultural sector has also been captured.*

Section 1: Summary

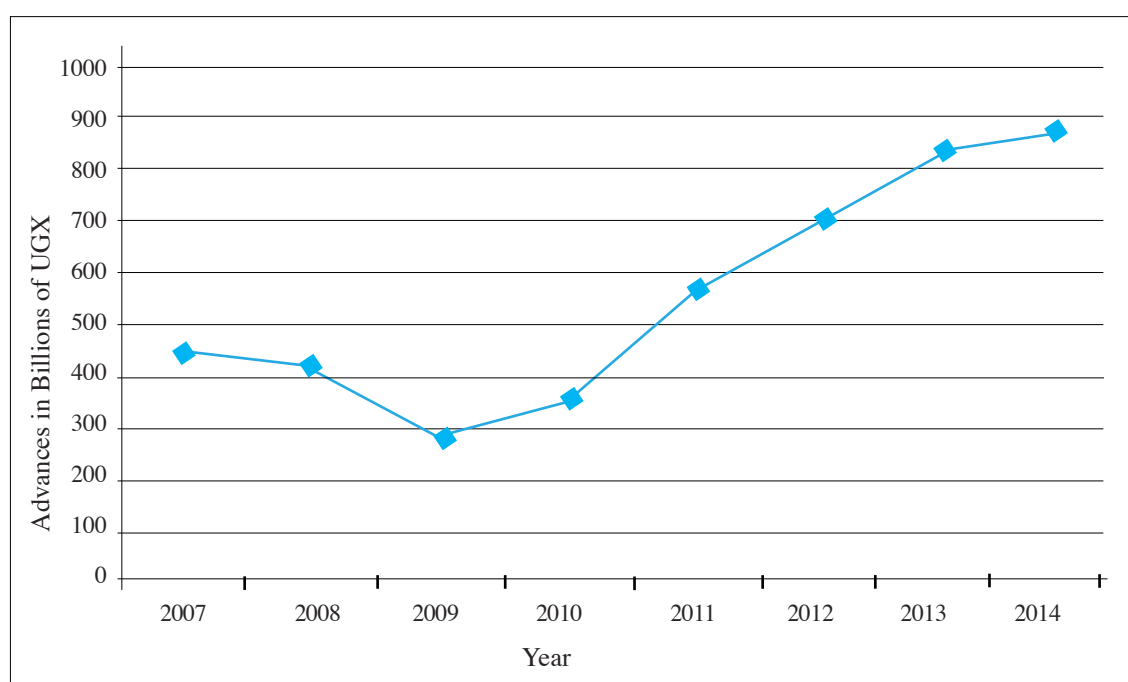
The main features for agricultural lending and leasing for the year 2014 are²:

- a. Lending to agriculture has continued to demonstrate an upward trend, as for the period since 2010. Unlike in 2012 and 2013, when the increase was attributed to substantial lending for marketing, in 2014 the increase has mainly resulted from increases in lending for both production and processing, with lending for marketing following closely. Details are set out in Diagrams 3 and 4.
- b. Since 2007, the percentage contribution of total agricultural lending to total bank lending has shown an upward trend. However, in 2014 this contribution reduced to 10 percent, a decrease of 1 percent from 11 percent in 2013.
- c. For successive years, 2011, 2012 and 2013 leasing volume by value has continued to decline. In 2014, leasing for the acquisition of agricultural machinery contributed 1 per cent of total agricultural lending. Although this is an increase from 0.1 percent in 2013, the change is hardly significant compared to the substantial increase observed in 2011, when there was an increase of over 21 percent in 2011. Even so, leasing in that year contributed only 3 percent of total agricultural lending.

The relevant data regarding the trends are laid out in sections that follow, starting with Diagram 1 and Table 1.

¹Authors: Robert Ocaya (robert.ocaya@giz.de) and Julian Kiwuwa (julian.nankinga@giz.de) GIZ Agricultural and Rural Finance (AGRUFIN) Programme

²Editor's Note: The cooperation is greatly appreciated of the Bank of Uganda and of supervised financial institutions in providing the data on which this regular article is based.

Diagram 1: Total Agricultural Lending

Source: Bank of Uganda Supervision Function and individual financial institutions

Table 1: Total agricultural lending by regulated FIs and MDIs between 2007 and 2014 in bn of UGX.

Total Agricultural Lending (Years)	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Totals
2007	86	84	108	172	450
2008	92	73	118	142	425
2009	69	57	86	79	291
2010	69	72	73	139	353
2011	97	104	191	174	566
2012	156	139	223	181	699
2013	189	193	210	245	837
2014	154	263	228	231	876

Source: Bank of Uganda Supervision Function and individual financial institutions

Table 1 shows that from 2007 to 2009 agricultural lending significantly and continuously declined. Since 2010 the trend has however, remained upward throughout to 2014. In 2011, agricultural lending increased by 60 percent from UGX 353 bn in 2010 to 566 bn in 2011. In 2012, agricultural lending increased further by 23 percent

from UGX 566 bn in 2011 to 699 bn in 2012. In 2013, agricultural lending continued to exhibit an upward trend and increased by 19.7 percent from UGX 699 bn in 2012 to 837 bn in 2013. In 2014, agricultural lending increased by only 4.6 percent from UGX 837 bn in 2013 to UGX 876 bn in 2014.

It is important to note that although total lending by financial institutions has continually increased, this has not translated into a similar increase in the overall contribution of agricultural lending to total bank lending. Indeed, as noted in section 1, this marginally declined from 11 percent in 2013 to 10 percent in 2014.

Section 2: Regulated financial institutions in Uganda by category

Commercial banks still constitute the biggest percentage of the total number of regulated financial institutions in Uganda. The numbers within the Three Tiers are as shown in Table 2.

Table 2: Numbers of Regulated Financial Institutions in Uganda

Year	Tier 1	Tier 2	Tier 3	Total
2007	14	5	4	23
2008	20	5	4	29
2009	21	4	3	28
2010	22	3	3	28
2011	23	3	4	30
2012	24	3	4	31
2013	26	3	3	32
2014	25	4	4	33

Source: Bank of Uganda Supervision Function and individual financial institutions

Note: Tier 1: Commercial Banks; Tier 2: Credit Institutions; Tier 3: Microfinance Deposit-taking Institutions.

The total number of regulated financial institutions increased from 32 in 2013 to 33 in 2014. The Bank of Uganda granted a Tier 2 license to Top Finance Bank Limited in September 2014 bringing the number of credit institutions to 4 in 2014 from 3 in 2013. In addition, BOU issued a Tier 3 license to Entrepreneurs Financial Centre, EFC Uganda Limited in November 2014 leading to an increase in the number of MDIs from 3 in 2013 to 4 in 2014.

However, in July 2014, Bank of Uganda decided to revoke the license of one commercial bank, Global Trust Bank (U) Limited (GTBL) as a financial institution reducing the number of commercial banks to 25 in 2014 from 26 in 2013. This bank was active in the first two quarters of 2014. "...DFCU took over all deposit liabilities of GTBL and acquired selected liquid assets and performing loans of GTBL that were required to cover the depositor liabilities"³.

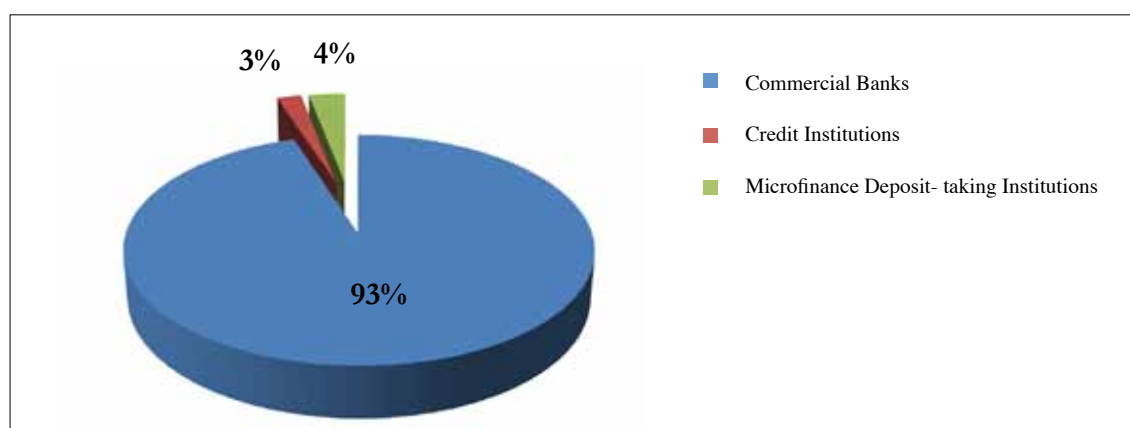
³Bank of Uganda Annual Supervision Report December 2014 Issue No. 5, page 5

Section 3: Agricultural Lending by Category of Financial Institution

As shown in Diagram 2, commercial banks remain the biggest contributors to agricultural lending, accounting for 93 percent of the total amount lent to the agricultural sec-

tor in 2014 (as in the preceding years, since 2007). They are followed by Tier 3 MDIs (4 percent) and Tier 2 credit institutions (3 percent), in that order.

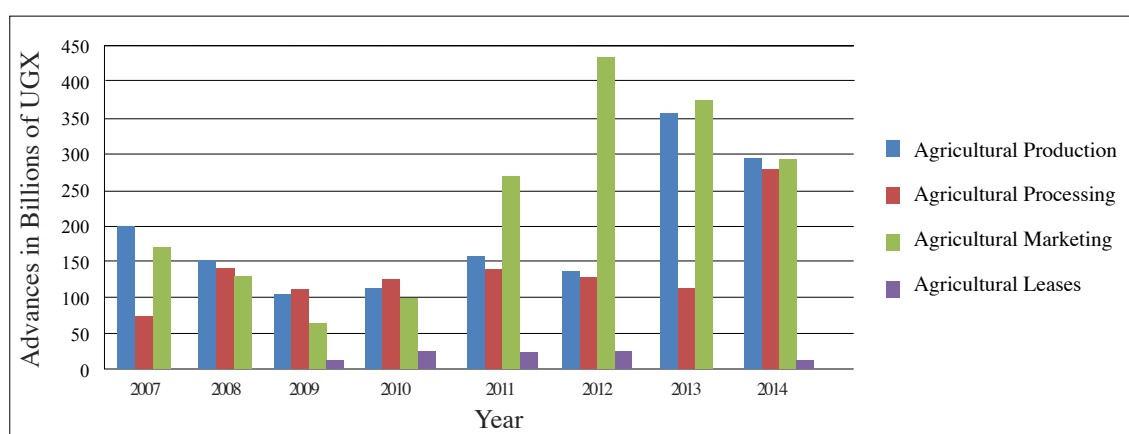
Diagram 2: Agricultural lending by Category of Financial Institution



Source: Bank of Uganda Supervision Function and individual financial institutions

Section 4: Lending in agricultural value chains

Diagram 3: Agricultural lending by activity



Source: Bank of Uganda Supervision Function and individual financial institutions

The data in Diagram 3 and Table 3 indicate the following:

- a. Overall lending to the sector increased slightly, as noted in the summary.

- b. In 2014, production finance constituted the biggest percentage of total agricultural lending (34 percent); however, the volume of credit for production loans declined by 16 percent as compared to 2013. Medium



term lending for production further increased in 2014 by 70 percent. Both short and long term lending for production instead declined in 2014 as compared to 2013.

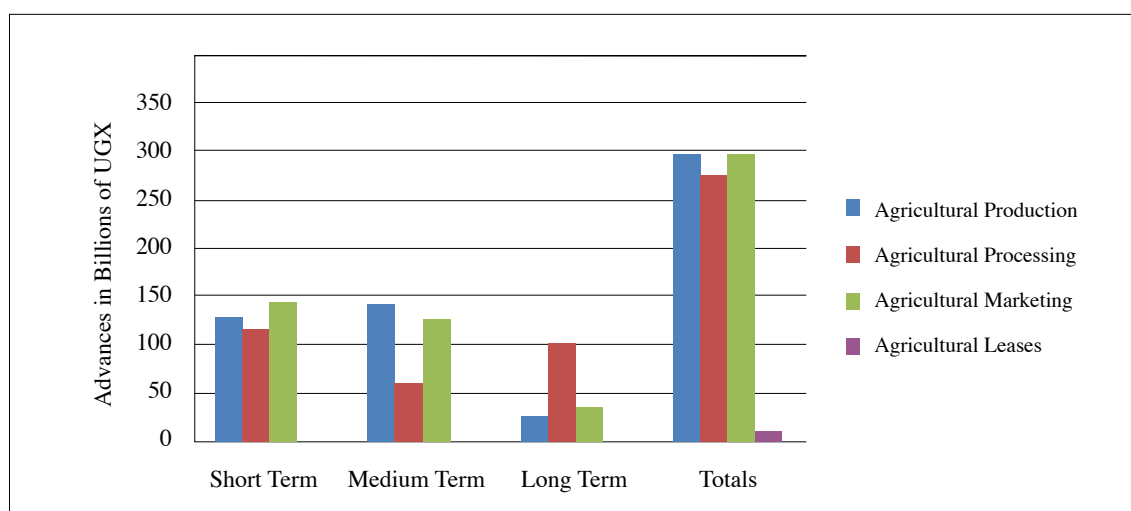
- c. Though processing finance contributed 32 percent of total agricultural lending following marketing finance and production finance, the volume of credit for agricultural processing significantly increased by over 140 percent in 2014. This follows a continued decline since 2012 (by 2 percent) and a further decline by 10 percent in 2013, having significantly increased in 2008 and steadily increased from 2009 to 2011. Whereas medium term financing for processing further declined in 2013, there was a considerable increase of 270 percent in 2014. The trend for short term and long term financing for processing remained upward in 2014 with a significant increase of over 80 percent for short term and 191 percent for long term.
- d. Though marketing finance constituted the biggest percentage of total agricultural lending in 2013 (44 percent), in 2014 it only contributed 33 percent, a further decline by 20 percent compared to a decline by 14 percent in 2013. The increase in agricultural lending in 2014 was therefore attributed to a balanced contribution of lending for production, marketing and processing.
- e. Leases for agricultural machinery increased in 2014 contributing 1 percent of total agricultural lending from less than 1 percent in 2013 compared to a steadily reducing contribution of leases to agricultural lending from 4 percent in 2010 to 3 percent in 2011 and 2 percent in 2012.

Section 5: Agricultural lending by repayment period

Diagram 4 illustrates that short term lending contributed 65 percent of total lending in 2013 but declined to 43 percent in 2014.

Even so short term lending constituted the biggest percentage of total lending compared to medium term and long term.

Diagram 4: Agricultural lending by repayment period



Source: Bank of Uganda Supervision Function and individual financial institutions

Medium term lending followed with an increased contribution of 37 percent of total lending in 2014 compared to 23 percent in 2013. Long term lending contributed the

least (18 percent) as in the previous years since 2007. As earlier stated, leases contributed just 1 percent of total new advances in 2014.

1.2 AGRICULTURAL CREDIT FACILITY (ACF) - UPDATE¹



Section 1: Performance of the Scheme

The performance of the Agricultural Credit Facility (ACF) has steadily improved since it was established in 2009. The disbursements have increased to UGX 179.02 billion in June 2015, from UGX 150.2 bn in June 2014 and UGX 118.5 bn in June 2013. Funds amounting to UGX 12.57 bn have also been earmarked for a number of projects pending disbursement. To date a total of 303 projects across the country have benefitted under the scheme.

Section 2: Accessing the Fund

Procedure

All ACF loan applications are channelled through the Participating Financial Institutions (PFIs) that are fully responsible for the appraisal of the loan requests, in line with their credit policy, to ensure that only eligible projects are financed. The PFIs then disburse their own funds to the eligible

projects and request for reimbursement of the 50 percent GoU contribution from Bank of Uganda (BoU).

Implementation

The ACF is accessible to all farmers and agro-processors in Uganda with bankable projects, provided that the intended activity is eligible and within the ACF framework. BoU, as the Fund administrator, does not deal directly with the ACF beneficiaries, but rather relies on the PFIs to select the eligible projects for financing. The scheme is currently being implemented by 17 Financial Institutions that include DFCU Bank, Stanbic Bank, Centenary Bank, Barclays Bank, Bank of Baroda, Orient Bank, Standard Chartered Bank, Diamond Trust Bank, Kenya Commercial Bank, Uganda Development Bank, Crane Bank, Mercantile Credit Bank, Housing Finance Bank, Opportunity Bank, Post Bank, Tropical Bank and Bank of Africa. Other financial institutions are eligible to come on board, but have not yet done so.

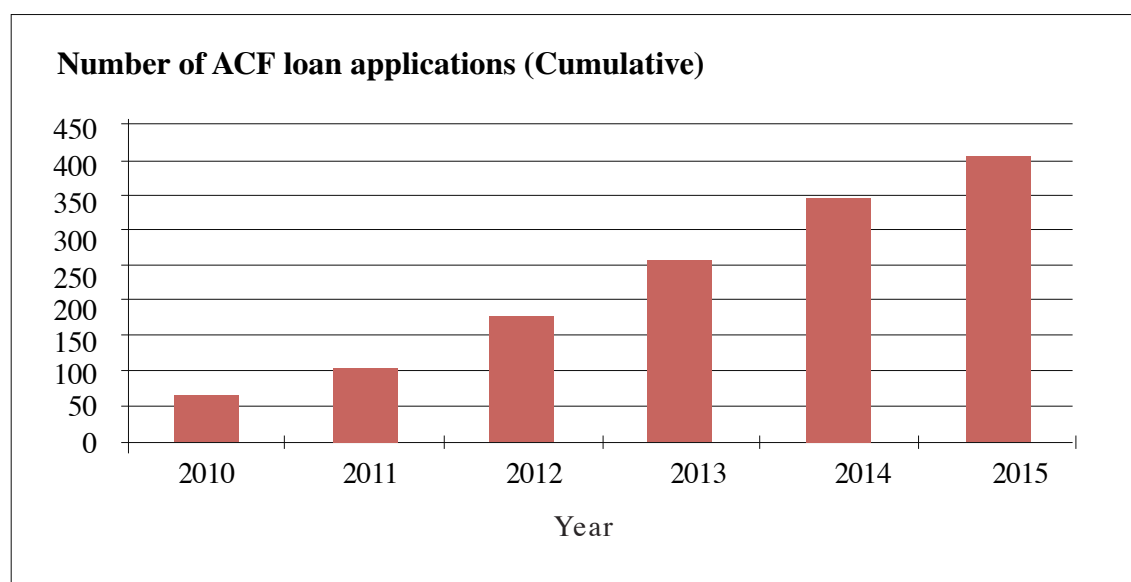
¹Authors: Rosette Bamwine (rbamwine@bou.or.ug) and Winnie Muliisa (wmuliisa@bou.or.ug) Bank of Uganda. Articles on the ACF were published in earlier editions of the *Yearbook*, namely those for 2011 and 2012. Hence the present article does not describe the scheme in detail. Rather it focuses on experience with the ACF since the last update, in 2012.

Total Loan Applications received as at 30th June 2015

There is a notable increase in the volume of loan applications received at BoU for financing under the ACF, which is evidence

for the need for agricultural financing in the agricultural sector. The total (cumulative) loan applications increased to 405 in 2015, up from 345 in June 2014, as shown in the figure below.

Figure 1: Loans applications received as at BoU since inception (2010-12)



Source of funding under the scheme

The scheme is funded by both the PFIs and GoU. As at 30th June 2015, the GoU remittance to the ACF Escrow account totalled UGX 119.07 bn to cover disbursements since inception and commitments made, as well as the applications in the pipeline, currently amounting to UGX 18.07 bn. The PFIs in turn made a commitment to match the GoU contribution in equal proportion in accordance with the MoU.

Section 3: Investments Financed

A wide range of activities have been financed under the ACF, with funding going to key investment areas such as: agro-processing machinery, tractors, farm equipment, irrigation equipment, green house facilities, farm expansion and modernization, poultry brooders and related activities, piggery and storage facilities, among others. The bulk of funds have been lent to projects engaged in agro-processing.

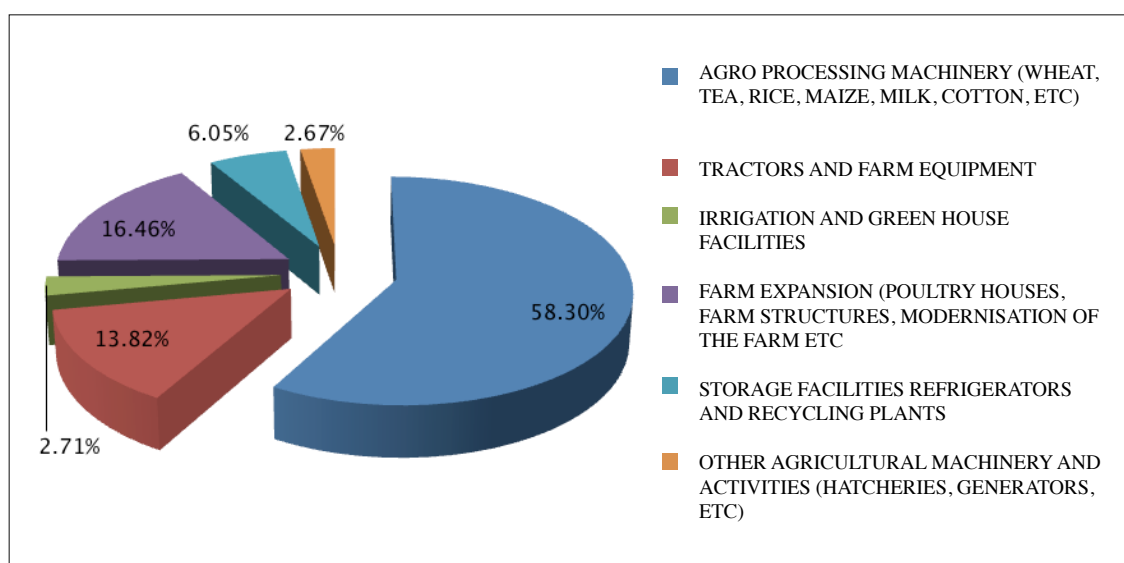
Figure 2: Percentages of areas funded as at 30 June 2015 (disbursed and committed funds)

Figure 2 shows the percentages of the areas funded under the scheme as at 30 June 2015. As is evident, agro-processing accounts for 58.30 percent of the funds allocation, which is consistent with one of the scheme's key objectives, namely, value addition. This is followed by farm expansion in the sense of enterprise structures (16.46%), tractors and farm equipment (13.82%), storage facilities (6.05%), irrigation and greenhouses (2.71%) and finally, 'other agricultural machinery' (2.67%).

Section 4: Challenges faced by the Agricultural Credit Facility

The challenges of agricultural lending are well covered in articles in various editions of the *Yearbook*, as well as in other forms of information sharing. Suffice it to note here that these challenges also affect the ACF in various ways. Most of the farmers in Uganda are subsistence farmers who would only

qualify for small loans yet the ACF scheme was designed to foster commercialisation and modernisation of the agricultural sector. This aspect presupposes that the kind of farmers the scheme is looking at are mainly medium to large scale farmers.

It should also be noted that the ACF contributes to the modernising of smallholder agriculture directly and indirectly in that investments in better processing facilities expand the market for the produce of smallholders, thus assisting to enhance marketing options as well as boosting farming incomes, over time.

Nonetheless, the scheme has been reviewed to accommodate this category of farmers. It is also important that subsistence farmers are encouraged and assisted to adopt commercial farming techniques, even on a limited scale, in order for them to achieve higher agricultural productivity.

Other key challenges to greater involvement by smallholders in the ACF include:

- Smallholder farmers do not usually have bankable projects attractive to the PFIs,
- Lack of adequate collateral,
- Socio-economic conditions at the farmer level,
- Inadequate rural infrastructure affecting loan monitoring,
- Lack of access to the range of inputs required by farmers,

- Poor record keeping by some farmers,
- Inadequate post-harvest handling equipment,
- Lack of reliable & adequate information on good agricultural practices,
- Lack of appropriate policies for agricultural finance in Uganda.

All these have an impact on the uptake of the ACF loans especially by the SMEs who are the majority in Uganda.

1.3 CURRENT STRENGTHS AND WEAKNESSES WITH WAREHOUSE RECEIPTS¹



Section 1: The Warehouse Receipt System structure

Warehouse receipts (WR) are documents issued by warehouse operators as evidence that specified commodities of stated quantity and quality have been deposited at particular locations by named depositors. The depositor may be a producer, farmer group, trader, exporter, processor or indeed any individual or body corporate. The warehouse operator holds the stored commodity by way of safe custody, implying s(he) is legally liable to make good any value lost through theft or damage by fire and other catastrophes but has no legal or beneficial interest in it. In case of liquidation, the warehouse operator's creditors will not be able to seek recourse to the commodities stored since legal title remains with the depositor or *bona fide* holder of the receipt. The only exception is the warehouse operator's lien covering outstanding storage costs.

The Warehouse Receipt System legislation of 2006 effectively allows for two constituent parts of the warehouse receipt, one for the commodity held by the depositor (certificate of title - CT) and one for collateral held by a lender accepting the commodity as a pledge for a loan (certificate of pledge - CP). Lenders usually advance funds as a specified percentage of the value of the underlying commodities to allow for the costs of recovery in case of default or value decrease caused by price volatility.

Under the Act, Government mandated the Uganda Commodity Exchange (UCE) to establish the regulatory framework for licensing and overseeing activities of warehouse operators and issuance of negotiable warehouse receipts.

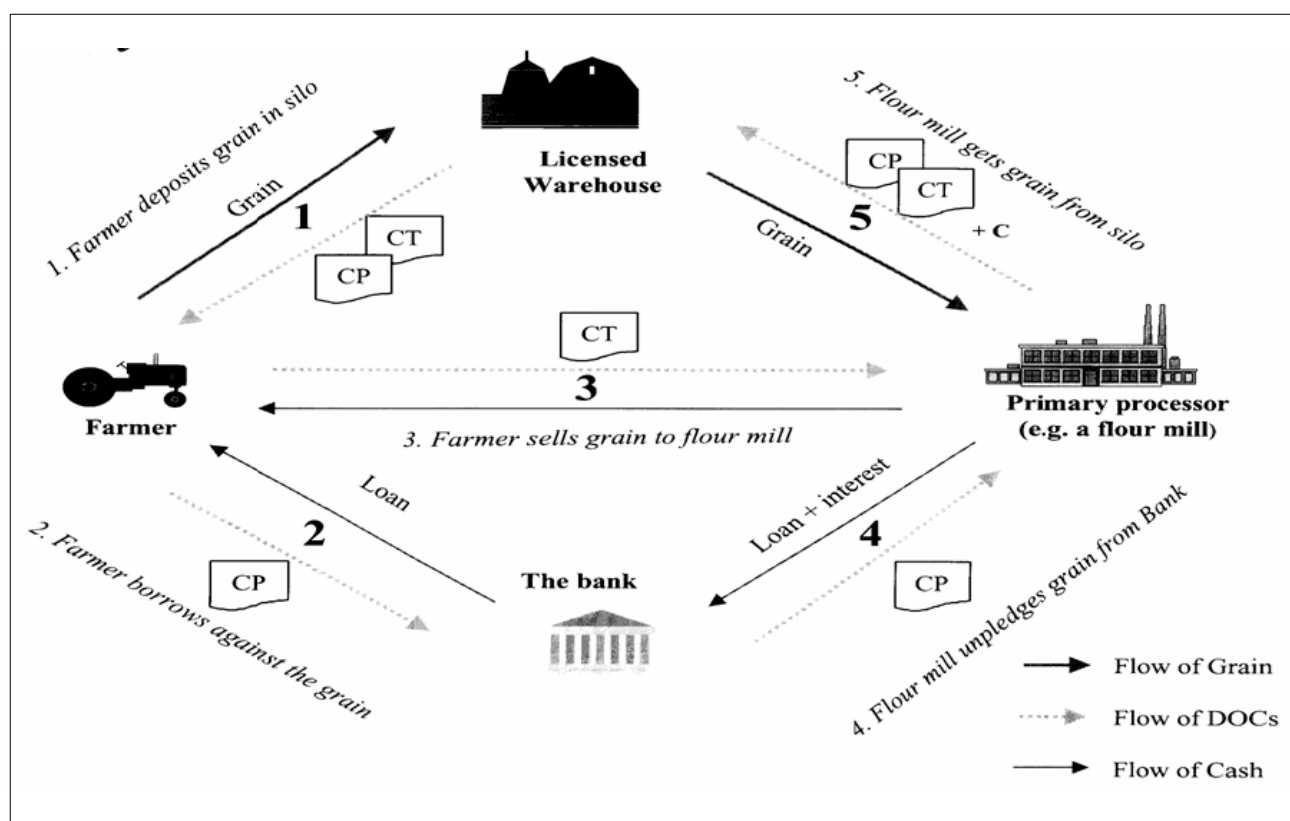
¹Author : Christian Baine, Uganda Country Director, Collateral Management International Ltd.
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Figure 1 demonstrates how a warehouse receipt would typically be incorporated into a maize trade finance structure. The sequences are also set out in the text below, where the numbers in brackets refer to Fig.1.

Sequence of transactions when the Warehouse Receipt system is used

- i. Individual maize producers/traders/farmer groups deposit product into the warehouse (1).
 - Lender can only dispose of commodity if the borrower defaults on the loan.
 - Loans are a certain percentage of the face value of the receipt to cover selling and other related costs in the case of a forced sale.
 - Any changes in the value of the commodity as well as costs of storage, insurance etc. belong to the depositor.
- ii. The warehouse, which is licensed, issues a warehouse receipt to confirm that commodities have been received physically and meet specified quality standards.
- iii. The Depositor can then use the receipt as a pledge to secure a loan from a bank or lender (2).
 - The lender places a lien over the commodity so that it cannot be sold without the proceeds first being used to repay the outstanding loan.
- iv. The farmer uses the CT element to sell the commodity to a primary processor/miller or trader (3).
- v. Miller pays the farmer by clearing the loan and interest at the Bank, after which the Bank releases the CP (4).
- vi. The Warehouse Receipt is presented to the warehouse to secure release of the commodity to the processor (5).

Figure 1: The Warehouse Receipts structure



Source: Bryde and Martin (1999)

Section 2: Benefits of a Warehouse Receipts System (WRS)

Table 1: Benefits of the WRS to maize sector stakeholders in Uganda

Potential user	Expectations from the Warehouse Receipt System
Producers	
Smallholder producers	- Improved marketing through bulking of produce. Access to a more formal market. - Access to better storage - Access to credit while waiting for prices to increase - Potential for increased prices through deferral of sale
Larger-scale farmers	Improved marketing and finance will improve the profitability of commercial farming.
Traders	
Village marketing groups and co-operatives	- Access to better markets and inventory finance - Improved storage and handling facilities.
Village traders/consolidators	Scaling up through access to finance.
Established urban traders and millers	- UNGA Limited, Maganjo Flour Mills etc. will benefit from more reliable supplies of a known quality, which will in turn enhance planning and their capacity to perform against contracts. - Reduced need to carry out their own sampling to check quality, aflatoxins etc. - Significant reduction in administrative and management costs: reduced receipts of small maize consignments at Mill gates, reduced need for upcountry buying centres, and reduced number of small payments to be made. - Reduced working capital requirements, as the banks provide direct finance through the WRS.
Institutional buyers like WFP	A WRS would provide incentives for independent warehouse managers to lease WFP's warehouse facilities and cleaning/grading equipment and improve their output, quality and performance.
Maize Millers	Regular supply of quality produce. But this depends on their scale of operation and the liquidity constraints they face.
Banks	- Access to organised commercial small-scale farmers, thus increasing customer base and income. - Provision of agricultural credit against good, liquid collateral - Excellent public relations (PR)
Institutional players	
Schools, Government, The Uganda Grain Council, Eastern Africa Grain Council,	- Government can create strategic reserves at private warehouses through buying warehouse receipts without having to set up warehouses and incurring the administrative costs relating thereto. - Private sector associations, Government bodies like the army, police, are all interested in better quality produce while the donors are interested in maximizing the developmental impact of the market interventions under WRS and facilitating access to finance systems for smallholder farmer groups and traders.

The potential financial benefits of the warehouse receipts system to farmers and producers of maize are illustrated in Box 1. However, the potential benefits can only be

realised if there is certainty regarding the quality and quantity of the grains being delivered.

Box 1: Cost/benefit analysis of grain export trade using UCE/WRS

We illustrate the potential financial benefits using the hypothetical case of a group of farmers depositing at the licensed warehouse in Jinja, which is about 100 kilometres from Busia, a town on the Kenya border (the export destination). Assuming the grain is at 16% moisture and does not meet the specifications for EAC Grade 3, the marketing options available to the farmer are:

- a. Sell directly at the farm gate for the nominal price of UGX 700 per kilo. In reality, when discounts for quality and adjustments are factored in, the effective price per kg is likely to be between UGX 595 and UGX 630.
- b. Alternatively, deposit the grain at the licensed warehouse in Jinja, where it will be dried and cleaned to EAC Grade 1 compliant. This will cost an estimated UGX 95 per kg (for loading up/off, drying, cleaning, bagging, transport to warehouse and processing loss – i.e. weight loss due to drying and cleaning). Additional costs include brokers fee of UGX 5 per kg transport cost estimated at UGX 12.6 per kg to the Busia market where a quality premium is reportedly offered. The total cost of conditioning the grain is UGX 112.6 per kg. In Busia, the depositor is likely to obtain UGX 941 per kg of EAC Grade 1, implying a net income gain per kg of grain sold of UGX 128.40 (18.3%) if it is assumed that there are no price discounts at the farm gate for quality, especially moisture. If there is a 10% to 15% discount, as often occurs, then the net gain is between 31.5% and 39.2% respectively.
- c. If the depositor intends to benefit from intra-seasonal rise in grain prices, that increase needs to exceed the carrying costs (storage, fumigation and interest payments), which is estimated at UGX 17.50 per kg per month.

Source: Based on data collected from warehouse operations at Jinja (Agroways Ltd) and Gulu (WFP licensed stores in Layibi).

Section 3: Current weaknesses in the Uganda Warehouse Receipt System

No visible improvement in MIS

Most MIS platforms² in Uganda report nominal prices per kilogram without any indication of quality premiums or discounts. As such farmers and other stakeholders base their marketing decisions on nominal market prices, which mask various discounts. This means that some farmers may

be losing out by not taking advantage of the formal marketing opportunities emerging from the WRS as we illustrate below in Box 2. Depositors are likely to make better-informed decisions if MIS for grains in Uganda is improved³.

² RATIN and Farm Gain regularly issue daily and weekly market and price summaries

³ For more information on maize quality issues see Drew (2012)

Furthermore, delayed maize sale using inventory credit secured against stocks stored under the WRS can also be profitable, but

the margins could be variable as demonstrated below.

Box 2: Information asymmetry and farmers' assessment of marketing options

During a study conducted in 2012 in the Masindi area, farmers reported that the nominal farm gate price per kilogram of maize was UGX 700. During the same period, one buyer was offering UGX 820 per kg for good quality grain at the MASGA warehouse. This was considered unattractive because of the estimated cost of conditioning the grain for depositing at the warehouse. To deposit maize in a licensed warehouse, depositors incur the following costs: transport, cleaning, bagging and processing losses (due to moisture loss and cleaning). This cost is estimated at UGX 180 per kg. Based on the nominal prices, it will appear that farmers will lose out unless they obtain a minimum ex-warehouse price of UGX 880 per kg, which is 7.3% higher than what the major buyer in this case offered.

However, the picture is different if actual "discounts" which are common in the market are factored in. Anecdotes from interviewees during the study suggest that net price discounts are between 20 and 30 percent, particularly at the peak of the harvest when many farmers are desperate to sell and the moisture content of the grain is high. The "discounts" reflect "cheating" on weight (due to "adjusted" scales) and for high moisture and dirt (mainly by means of highly subjective visual quality assessments). Hence, while the nominal farm gate price is UGX 700 per kg, the farmer will in effect be receiving between UGX 560 and UGX 490 per kg.

With this perspective in mind, it is apparent that the breakeven ex-warehouse price when the conditioning costs are added is about UGX 740 per kg. Hence, farmers selling to the buyer, who offered UGX 820, would have made a net gain of between UGX 80 and UGX 150 per kg. However, many of them have difficulty making such a decision due to lack of the required market information.

Source: Study conducted by Natural Resources Institute in 2012 for World Food Program and UCE

Based on the above, we can estimate the margin for bank-financed delayed sale in 2012 as follows:

	UGX per kg
Opening market price in February	595.00
Into-warehouse value (including grain conditioning cost)	775.00
Inventory credit at advance rate of 50%	387.50
Cost of finance for 5 months (interest rate of 26.5%)	42.79
Storage/fumigation costs	31.00
Total in-store value after 5 months	848.79
Projected July market price (based on average rise)	853.83
Projected margin	0.59 %
Actual July market price (based on average rise)	936.47
Actual margin	10.33 %

It must be noted that these margins do not take into account gains from avoiding “cheating” on weight and quality which occurs in the informal market as a result of lack of transparency, as discussed in the case in Box 2 above. It has to be further noted that the margins can be affected by the size of credit taken and how long sale is delayed (affecting the cost of borrowing). For this reason, banks tend to limit lending to 50 percent of the market value at the time of deposit.

They also limit duration of loans to three months – to minimise downward price risk from the new harvest. It is also apparent that the conditioning cost (a major part of which is the cost of drying and cleaning) represents a far higher cost than the carrying cost (i.e. storage costs plus cost of borrowing). Hence, efficiency gains in transport (from rural areas to the warehouses that ranges between UGX 30 to UGX 100 per kg) as well as cleaning and drying (that ranges between UGX 40 and UGX 80 per kg) will impact significantly on the profitability

of using the WRS to delay maize sale in order to benefit from seasonal price increases.

Enforcement of quality standards not sufficiently robust

The Grain Sector in Uganda has adopted the harmonised EAC grain quality standards. Most formal procurement contracts are based on these standards. Initially, only EAC Grade 1 maize was acceptable however this has been extended to EAC Grade 2 as well. Over the period 2008 – 2013 UCE conducted training for licensed warehouse operators and their grain handling personnel on grain quality assurance as well as warehouse management practices to maintain grain quality. A warehouse inspection unit was also established by UCE to undertake off-site monitoring and on-site inspection of the licensed warehouses; a process that included assessing compliance with protocols essential for maintaining the quality of stored commodities.

However, while most of the licensed warehouse operators acknowledge that such

inspection visits are beneficial because they help in identifying and correcting lapses in warehouse management and the receipting process, they are infrequent and there are many reported lapses in warehouse management in the facilities inspected. Though sampling and grading is done at the point of intake, many times no such procedure is followed when grain is being delivered, leaving scope for disputes over the quality of stocks delivered. The warehouse operators do not store samples taken from the receipted stocks, thus making it impossible for inspectors and other parties to subsequently confirm the validity of the grading done by grain handling personnel.

The ineffective quality assurance system has resulted in significant volumes of sub-standard maize being held in the stores of the licensed warehouses. This situation also undermines the confidence of the off-takers, including WFP, as well as the banks, with the result that some of them undertake independent grading and inspections, at extra cost to grain depositors.

Low Capacity Utilisation

Between 2008 and August 2013, a total of about 22,600 tonnes of maize was receipted by the UCE-licensed warehouses (this figure is based on projections from data provided by the Top 3 licensed warehouses, which account for about 90 percent of total deposits). Total deposits of maize stored by the licensed warehouses rose quickly from 1,217 tonnes in 2008 to just under 5,000 tonnes in 2010. By 2012, total deposits had dropped sharply to 3,312 tonnes and the downward trend continued in 2013. Even at the peak, the total deposits held by the licensed warehouses represented only 24.9 percent of total licensed storage capacity. The system-wide low level of capacity

utilisation is indicative of the difficulty most of the licensed warehouse operators have in breaking even.

Whereas some progress is being made by the few privately owned operators, those which are run by cooperatives are not doing that well. The private companies actively canvass for grain deposits, not only from smallholder farmers but also from small to medium-scale traders. They also tend to use the WRS to access trade finance in order to scale up their operations. In addition, private operators offer attractive complementary services including facilitating marketing of the stored grains by either brokering sales to major buyers or undertaking proprietary purchases for later sale. Some offer opportunities for value addition by depositors. They also act as referees for depositors who apply for production loans. These complementary services have proved to be major attractions for depositors.

In contrast, other operators, mainly coops which are struggling, tend to exclusively target groups of smallholder farmers and rely mainly on occasional sensitisation events in canvassing for deposits. They do not provide the ancillary services offered by the more aggressive operators described above.

Marketing of receipted grains

It had been anticipated that WFP and other institutional buyers would buy the bulk of the grains stored by the licensed warehouse operators. However, over the period 2008-2013, total WFP procurement of grains deposited in the licensed warehouses was 7,756.8 tonnes, representing only 38 percent of the total deposits. This is way below the level to which WFP committed in 2008, namely 30,000MT.

Several reports from WFP have indicated that limiting procurement factors for receipted grains included: non-compliance of stored grains with the quality standards it uses and grain price movements. Licensed warehouse operators and farmers also added a third factor, WFP's lengthy procurement process and the fact that they will only procure grain through a tender system at a price at or below the import parity price.

As indicated above, WRS grains do not tend to attract a premium price for quality, i.e. a preferential market. This is reflected in the prices that are offered by local millers as well as by regional traders from Kenya, Rwanda and South Sudan, who all offer the same price for the maize regardless of its quality.

Limited availability of warehouse receipt financing

The often cited motivation of depositors using the WRS is access to inventory finance, which allows them to delay sale of stored commodities in order to benefit from seasonal price increases. Though depositors could obtain such benefits, the primary objective of promoting the WRS is to facilitate structured trade by fostering aggregation and produce quality assurance. Inventory finance, in this context, serves mainly to ease liquidity constraints in the trade. In particular, finance helps smallholder groups to pay advances as they bulk and arrange subsequent sale, after which final payments are made. Evidence from the coffee and cashew subsectors in Tanzania shows that this system has been beneficial to smallholder farmers, even when intra-seasonal prices tend to be rather flat.

Total inventory financing provided by the banks actively involved in providing inventory finance including Stanbic, Housing Finance and Centenary banks between 2008 and 2012 is estimated at about UGX 6.425 billion (or US\$2.57 million). The finance provided peaked in 2010 but has declined since then. Bankers cite low and declining volumes – affecting the cost-effectiveness of the business – as one of the factors impacting negatively on the supply of finance.

There is also concern about the robustness of the quality assurance systems under the WRS, stating that it increases the risk of in-store losses and/or difficulty in liquidating the collateralised stocks. Both situations can increase the risk of default, though the banks indicated that they had so far not recorded any loan losses. It appears that their rather low advance rate of between 50 and 60 percent has helped mitigate the risk of loan default.

The other problem the banks cited for lack of growth in inventory financing has been the volatility in inflation rates since 2012. Today the inflation rate is 7.2% up from 4.6% in 2014. While inflationary pressures tend to increase risk aversion among the banks and so reduce the scale of lending, measures by the monetary authorities to control inflation such as raising bank rates, tend to increase the cost of borrowing, thereby squeezing the margins of grain depositors.

Section 4: Key Public Policy Actions required for an effective Warehouse Receipt System

If the WRS is to be effective it must meet the requirements of different stakeholders, some of which conflict. At the same time it must demonstrate a coherent integrity that provides for a robust structure. The essential characteristics include the following:

- a. The main constraint that has hampered the development of the WRS is a **regulatory mechanism** that will ensure the warehouse receipts structure is coherent, that the rules and necessary documentation are comprehensive; that markets and information flows are functioning; that there is some form of policing mechanism, with provision for dispute resolution. UCE, which was mandated to provide this role, has had serious capacity limitations in performing this regulatory function leading to the observed variability in grain quality at the licensed warehouses which has impacted negatively on bankers' perception of the security of the stored grains as well as limited the volume of grain traded by WFP. In 2014 however, Government established the Uganda Warehouse Receipt Systems Authority with a nine member board to take up this role. The board has already started its work and is currently licensing warehouses in collaboration with the Uganda Grain Council.
- b. The warehouse receipts system requires a macro economic structure that is satisfactory for participating banks. It is the banks that will provide the essential financing that will lubricate the system and make it work. We have noted that macroeconomic conditions in the country impact on the volume and cost of finance available to private borrowers, including those using the WRS. Maintenance of a stable macro economy is therefore important for full participation of the sector players.
- c. An **assurance of quality**: this embraces issues relating to storage and handling, and quality standards. Government should actively advocate measures and partnerships with trade and standards authorities that will harmonise and enforce the EAS standards both locally and regionally. To minimize variability in grading results, it is recommended that the standards authorities in the region work towards standardizing grading procedures, protocols and equipment as well as manuals for training grain handling personnel.
- d. Development of a **commodity trading system** should be prioritized as part of efforts to nurture the emerging formal market for quality grains at the domestic and regional levels. Such a system will help reduce transaction costs for major regional and domestic buyers, including the WFP (which would not have to undertake bespoke negotiations with sellers with stocks at different warehouses).
- e. Currently, most MIS platforms in Uganda report nominal prices per kilogram without any indication of quality premiums or discounts. A commodity trading platform, when established, should be in a position to generate **transparently determined market prices** which reflect quality premiums/ discounts and become a major source of market information for all market players.

- f. Current legislation appears to discriminate against farmers' organisations other than cooperatives (SACCOS, VSLAs and Area Marketing Enterprises) in undertaking contract-based transactions. This poses challenges when these farmers' organisations attempt to secure bank credit to facilitate aggregation on behalf of their members. Considering that other forms of farmers' organisations have emerged since the agricultural sector was liberalised, it is recommended that the existing legislative framework be reviewed and reformed to **remove perceived uncertainty regarding the legal authority of such organisations to transact**. The option which some have adopted – registering as cooperatives only in name – appears to only cloud issues and is not satisfactory to the banks.
- g. Based on the differences in performance of warehouse operators, we propose that private enterprises with clear profit maximising goals should be licensed to run warehouses under the WRS. Where cooperatives and other farmers' organisations intend to participate, it may be better for them to deposit with independent operators or if they so wish incorporate autonomous subsidiaries to run the warehouses. This will ensure that the **rights of depositors are not compromised by the nature of ownership of the warehouse** management company. Cooperatives and other farmers' organisations should then focus on facilitating aggregation by the members, enforcing quality standards at the collection centres and undertaking collective marketing on behalf of members⁴.
- h. One of the biggest challenges for the WRS as indicated above is the lack of formal markets for quality grain as well as information on the price and market conditions. In order to encourage deposits as well as cement its commitment to enforcement of quality standards and create a formal market in quality grain, we propose that Government, through the newly established warehouse receipts system authority, **encourages public institutions such as the police, army, prisons and schools to procure grain that meets EAS standards** and/or warehouse receipts on the commodity trading platform when it is fully established. This not only has benefits in price stabilisation but also food safety by reducing the exposure to aflatoxin and mycotoxins consumed by the population.

⁴**Editor's Note:** This point may well give rise to the sort of discussion that is essential when policies concerning the marketing of agricultural products are being developed (in itself a continual process).

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1.4 SOME FISCAL ISSUES IN FUNDING PUBLIC SECTOR INVESTMENT IN THE AGRICULTURAL SECTOR¹



Section 1: Agriculture – a sizeable orphan in Uganda

The agricultural sector remains the main source of livelihoods for majority of Ugandans, despite the dismal growth registered by the sector in the recent past. According to the 2012/2013 Uganda National Household Survey, at least 72 percent of Ugandans are engaged in agriculture—with more females (77 percent) than males (67 percent) employed in the sector (Uganda Bureau of Statistics, 2014a). Furthermore, about 43 percent of Uganda's working population is engaged in subsistence agricultural production.

On the other hand, during the past five years, the agricultural sector has underperformed both industry and services. In particular, the annual growth of the agricultural sector averaged 2 percent during 2000/1-2013/14 compared to an average of over 8 percent for both the services and industrial sectors (Ministry of Finance Planning and Economic Development, 2014a). In addition, the low agricultural produc-

tivity is happening against a backdrop of sustained population growth - which averaged 3.03 percent p.a. during 2002-2014 (Uganda Bureau of Statistics, 2014b). The low productivity of the agricultural sector is partly linked to a large subsistence sector coupled to inadequate investment and financial support to the sector. At the same time, the government of Uganda has attempted to re-introduce taxation of the sector as means of raising revenues to support the sector, as well as support the expansion of other public services.

Due to poor agricultural performance during the past 10 years, the relationship between the agricultural sector and public finances has been defined more through subsidies and tax exemptions, rather than direction taxation. Agricultural tax exemptions have targeted lending to agriculture, support for agro processing, and the increased use of agricultural inputs.

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For instance, in 2006/7, the GoU exempted from tax interest earned by financial institutions on agricultural loans. In the following year, it made losses and bad debts arising from agricultural lending tax deductible. In 2008/9, support was extended to agro processing with new investments in rural areas becoming income tax exempt. Subsequently, in 2009/10, the GoU introduced an Agricultural Credit Facility of UGX 30 billion at a preferential interest rate of 12 percent per annum. Apart from the above measures, most agricultural inputs were zero-rated for VAT. In 2014/15, in a bid to raise tax revenues and also address tax avoidance, the government eliminated most of VAT exemptions on agricultural inputs and imposed new tax on some agricultural products. Specifically, tax exemptions on interest earned from agricultural loans were terminated and the measure was expected to generate UGX 25 billion. Furthermore, zero-rating on VAT on agricultural supplies was proposed for termination with the measure expected to generate UGX 30 billion.

The direct budget allocation to the agricultural sector in Uganda is relatively low. During 2013/14 and 2015/16, Uganda allocated about 3 percent of the national budget to the sector and this is projected to remain the same during 2016/17 (Ministry of Finance Planning and Economic Development, 2015). With only 3 percent of the national budget devoted to this important sector (where 72% of the population is employed), agriculture remains grossly underfunded in comparison to other sectors of the economy, e.g., the energy sector, which commands more than 10 percent of the national budget. Within the agricultural budget, at least 33 percent is allocated to the public agricultural extension system.

In order to promote agribusiness, a number of investments are required. First, investments in roads are required in order to reduce very high transport and other transactions costs. Previous research on Uganda shows that infrastructure shortfalls are the reasons for the wide geographical variation in agricultural product prices (Gollin and Rogerson, 2010). Also, studies show the very long distances to inputs markets affect the eventual use of fertilizers in Uganda (Okoboi and Barungi, 2012). In order to reduce the cost of doing business and also better integrate rural producers with markets, the Government of Uganda (GoU) has overtime significantly increased its budgetary allocation to roads. This is based on the fact that without improving effective linkages between agricultural producers and agribusiness enterprises (e.g., input suppliers, processors, and traders), small-scale producers will not be in the position to take advantage of market opportunities. For instance, during 2010/11-2013/14, the share of the national budget allocated to roads and works averaged 14 percent. In the 2015/16, at least 18% of the budget was allocated to roads and this is projected to increase to 22 percent during 2016/17 (Ministry of Finance Planning and Economic Development, 2015). Nonetheless, the pace of agricultural production in Uganda has yet to match the above changes in roads investment and this may be partly linked to other binding constraints.

The **reliance on rain fed agriculture** is partly to blame for the lackluster performance of the agricultural sector. Although Uganda had an irrigation potential of 567 000 ha in 2010, less than 1% of the cultivated area is equipped for irrigation (Ministry of Water and Environment, 2011). Irrigation in Uganda is dominated by two crops—

rice and sugarcane—which together account for 85 percent of the total area under irrigation. Public investment in irrigation schemes has traditionally been low, although in the recent past, the Government of Uganda has allocated substantial resources to the rehabilitation of public schemes.

The 2010-2015 Development Strategy and Investment Plan (DSIP) for agriculture prioritized Water for Production and targeted to rehabilitate and establish new irrigation schemes across Uganda. Specifically, the plan proposed to rehabilitate 9 irrigation schemes with coverage of 4,583 ha- focusing mainly on citrus fruits (MAAIF, 2010). Indeed, since 2010, at least UGX 115 billion (US\$ 45 million) were spent on rehabilitating 3 large scale systems: Doho, Mubuku, and Agoro. During 2014-2016, at least UGX 42 billion (US\$ 16.8 million) was earmarked for the rehabilitation of the Olweny Irrigation Scheme. The same plan sets an ambitious target to establish 10 schemes with an area of 9,330 ha to focus on rice and cotton, as well as establishing 1,200 farmer site-based pilot irrigation schemes.

Section 2: Taxation performance and impact on the Agricultural Sector

Despite maintaining positive macroeconomic growth rates, Uganda's tax revenue effort has stagnated during the past 15 years. During 2002/3-2014/15, Uganda's GDP growth averaged 7 percent per annum, driven by the surge in the services sector— notably telecommunication and financial services (Ministry of Finance Planning and Economic Development, 2015). On the other hand, the country's tax to gross domestic product (GDP) ratio stagnated; it ranged between 12-13 percent during the same

period. Indeed, Uganda compares poorly to its regional neighbours with regard to domestic revenue mobilization. The corresponding tax realization rates for Kenya and Tanzania were 19 and 16 percent of GDP respectively in 2013 (World Bank, 2014). The stagnation in tax revenue effort is partly due to: the large informal sector, which leads to a narrow tax base, inefficiency in tax administration and the prevalence of tax exemptions.

In a bid to spur particular sectors of the economy as well as attract private investment in priority sectors, the GoU has, over time, offered tax exemptions. During the past 15 years, each budget speech appears to expand tax exemptions. Specific to agriculture, tax exemption has been offered through zero-rating of Value Added Tax (VAT) on various inputs and services. For instance in 2002/3, the GoU exempted the supply of cereals grown, milled or produced in Uganda as a means of supporting the establishment of milling capacity in the country. Similarly, the GoU exempted interest income on agricultural loans as a means of making credit more affordable for farmers. On the other hand, overall tax exemptions are very costly. Previous estimates by the Africa Development Bank showed that Uganda was losing about 2 percent of GDP, of potential tax revenues, to exemptions (Africa Development Bank, 2010). Based on the 2013/14 GDP of UGX 60.5 trillion, a 2 percent loss of potential revenue amounts to UGX 1,210 billion - the figure is more than twice the Ministry of Agriculture Budget of UGX 480 billion in 2013/14. As such, it is possible that without tax exemptions, Uganda's tax revenues could match the regional averages in East Africa and the country would be in position to expand public sector support for agriculture.

Although tax exemptions were considered to be temporary measures - to kick start particular sectors and provide temporary relief to struggling sectors - attempts to reverse such exemptions have caused protests in the recent past. For instance, during 2014/15, the removal of VAT exemptions on agricultural inputs and machinery, announced during the 2014/15 budget speech, sparked uproar from Members of Parliament and civil society organizations (CSOs). The 2014/15 tax changes were geared towards increasing the tax revenue. However, the agricultural tax proposals were reversed within 3 months of the pronouncements.

There is limited evidence to show that the support to the agricultural sector through tax exemptions have reached the intended beneficiaries. For instance, tax exemption on interest income from agricultural loans did not significantly increase agricultural lending. Specifically, although overall access to credit has increased in the country—from UGX 626 billion in 2001 to UGX 8,618 billion by 2013, the share of agricul-

tural loans in total commercial bank lending only increased from 7.1 to 8.4 percent during this period (these rates are measured differently from those reported in article 1.1 on page 5).

Furthermore, there is limited evidence to show that there were any preferential interest rates offered by lenders to agricultural borrowers, as result of tax exemptions. Instead, agricultural producers have been subjected to the same borrowing environment as other enterprises. The only exception was through the Agricultural Credit Facility (ACF) by which government made available UGX 30 billion annually to participating financial institutions at zero interest, on the condition that they on-lend for medium to longer term agricultural investments at a fixed interest rate, initially set at 10 percent per annum, which was later raised to 12 percent . As shown in the Figure 1 below demonstrates that the commercial banking sector in Uganda has been characterized by interest rates nearly double that offered on loans financed through the ACF.

Figure 1: Trends in commercial bank lending rates 2010-2015 percent interest charged



Source: Bank of Uganda (2015)

²**Editor's Note:** See also Article 1.2 in this edition of the Yearbook for more detailed information on the current position of the ACF. Other Yearbook articles on the ACF have been published in the 2010 Yearbook (Article 1.3), which introduced the scheme, with respective updates in the Yearbooks for 2011 and 2012.

Also, the majority of agricultural loans were destined for crop finance (including marketing advances), with less than 25 percent of the loans earmarked for crop production per se. As such, partly due to the credit constraints faced by farmers, a large part of Ugandan agriculture remains largely subsistence. Similarly, the zero-rating of VAT on seeds, fertilizers, and pesticides did not produce noticeable changes in the use of these specific inputs. For instance, the 2013/14 Uganda National Panel Survey (UNPS) report shows that use of both organic and inorganic fertilizer among households stagnated at 5% since 2009/10 (Uganda Bureau of Statistics, 2015). Beyond credit there other constraints e.g. lack of extension services.

Secondly, due to challenges of tax administration, unscrupulous middlemen were able to exploit the agricultural tax exemptions to evade taxes. For instance, the VAT exemption on supply of animal feed and poultry encouraged some businesses engaged in other activities to mis-declare their products as feeds. Similarly, the VAT exemption on agricultural machinery was abused by importers, declaring other machinery as agricultural equipment. Overall, the zero-rating of VAT on agricultural products did not benefit farmers because the price paid for agricultural inputs did not significantly reduce despite the import subsidy. Furthermore, the constrained ability by farmers to claim VAT on final products (due to the highly informal nature of most agricultural enterprises) meant that the benefits of the tax exemption to majority farmers were minimal.

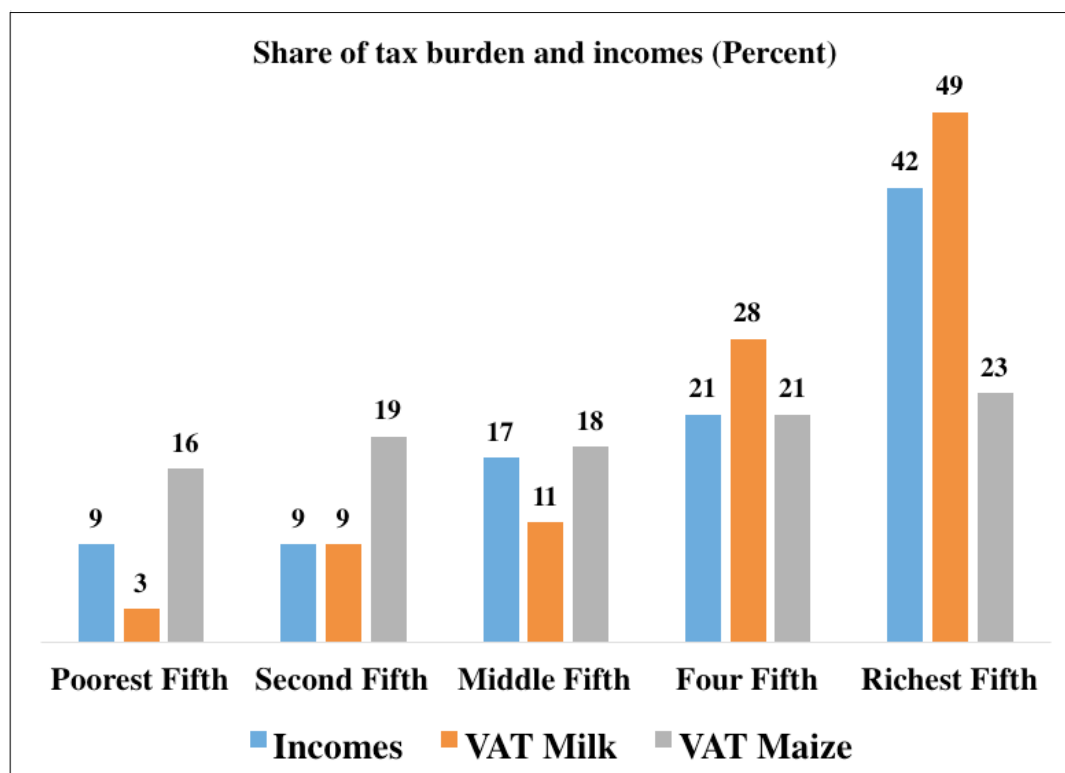
Finally, some of the incentives were captured by relatively well-to-do households. For instance, the zero-rating of VAT for supply of milk was a subsidy to the final consumers of milk products (typically middle to high income group) and not processors. There is hardly any justification for such a tax subsidy when products consumed by the poor e.g. soap and salt are not VAT exempt.

Section 3: Beneficiaries

Taxation of agriculture affects different segments of the population in various ways. Previous research by Ssewanyana and Kasirye (2015) indicated that the termination of VAT zero rating on processed milk would generate revenue in the range of UGX 19-22 billion annually and this tax would be progressive as shown in the Figure 2 below since relatively few households consume pasteurized milk. On the other hand, because maize is consumed by about one in every two households in Uganda, the removal of VAT exemption would generate about UGX 129-148 billion in additional tax revenues but the relatively poor households would bear the burden of tax compared to the case for milk. Indeed, Ssewanyana and Kasirye (2015) note that the removal of VAT exemption on maize flour would affect most households whose head is a female, those in rural areas as well as residents of the eastern and western regions. The food security of the above categories of individuals could be compromised, given that maize is a staple foodstuff.

³ The overall objective of zero-rating of VAT on agricultural products was to provide a subsidy to the agricultural sector and also support the formalization of agricultural enterprises (through providing an incentive to claim VAT on final products).

⁴ Estimates by Mbowa et al. (2012) show that about 28 percent of the milk consumed by households in Uganda is pasteurized.

Figure 2: Estimated impact of removal of VAT exemptions on milk and maize flour

Source: Ssewanyana and Kasirye (2015)

Section 4: Policy Development

There are a number of processes guiding the support to the agricultural sector in Uganda. The first thematic focus is **increasing both land and labour productivities** through the adoption of agricultural technologies such as improved seeds, fertilizers, and use of pesticides. This focus is guided by substantial evidence of lackluster performance of the agricultural sector in the recent past. For instance, as noted above, whereas growth in the industry and services sector averaged over 8 percent per annum during 2000/1-2013/14, the agricultural sector managed only 2 percent per annum over the same period.

The government has targeted expanding access to inputs such as fertilizers. Most inputs at the moment are imported. Yet many

imported inputs are falsely described and labelled, in fact they are **fake**⁵. The enforcement of standards of imported inputs remains a challenge, due to weak capacity at the border crossings. Also, the effective delivery of fertilizers has been hampered by the delay to adopt the national fertilizer strategy, policy and regulations. In 2012, MAAIF signed a MoU with UNBS to utilise Pre-Export Verification of Conformity (PEVOC) because of issues with the quality of imported inputs, but it is not known how effective this policy has been. In the interim, MAAIF needs to recruit a substantial workforce of agricultural inspectors if it is to curb the vice of fake agricultural inputs.

⁵ Editor's Note: See Drew, Clive, "Quality Control in Ugandan Agriculture: Who Controls the Controls?" Article 4.1 in the Ugandan Agricultural Finance Yearbook 2013/14, BoU & MAAIF, Kampala 2014.

Another policy has been **value addition of key strategic commodities**. According to the Development Strategy and Investment Plan for agriculture in Uganda, the country was divided into 10 agricultural zones and specific products best suited for production in each zone were destined to be prioritized (Ministry of Agriculture Animal Industry and Fisheries, 2010). The 10 selected product from the most highly ranked to the lowest are: maize, coffee, fish, dairy cattle, beans, beef cattle, tea, cassava, poultry and bananas.

The selection of the above strategic commodities was based on data as well as suitability to Uganda's climatic conditions. Whereas some of the above commodities have been prioritized through specific policies e.g. coffee, other selected commodities are yet to receive similar treatment e.g. **tea and beef cattle**. Furthermore, whereas some of key products facing severe constraints e.g. **fish** are identified as prioritized, overall government response to the dwindling fish stocks has been ineffective, due to limited personnel and corruption of enforcers.

Clearly the whole issue of support for strategic commodities cries out for renewed policy attention and additional resources.

Finally, attempts to realize taxes from agriculture should be balanced by increased support to the sector. As earlier noted, the GoU made attempts to spur the formalization of agricultural enterprises (through tax incentives for which agricultural enterprises could benefit through formal registration) as well as include agricultural firms into the tax bracket. For instance, some of the removals of VAT exemptions mentioned earlier were geared towards forcing agricultural enterprises to register for VAT (Ministry of Finance, Planning and Economic Development, 2014b). On the other hand, the removal of VAT exemption on maize milling was intended to bring economically viable agricultural enterprises into the tax bracket. Similarly, the removal of VAT on poultry feeds targeted discouraging informality among poultry producers. It is worth noting that proposals targeting the formalization of agricultural enterprises are not based on hard data. Overall, given the relatively very low public funding to the agricultural sector, any attempts to raise tax revenues from the sector should be matched by increased public spending to the sector. In particular, there is need to allocate more funding to the extension service as well as to the input supply chain, if substantial growth in the Ugandan agriculture sector is to be achieved.



2

Innovations and Research



2.1 THE ONE ACRE FUND IN UGANDA AND KENYA¹



Section 1: The target clientele

Some 75 percent of the world's hungry are farmers, many of whom farm less than two acres of land. One Acre Fund, a non-profit social enterprise, has developed a solution that enables these smallholder farmers to improve their productivity, increase their incomes, and end hunger for their families and communities. We currently serve over 280,000 farmers in Kenya, Rwanda, Burundi, and Tanzania, and have pilot operations in Uganda and Malawi.

One Acre Fund invests in smallholder farmers, providing them with the financing, tools, and training they need to generate a permanent gain in farm income. By listening to farmers, we have developed a comprehensive service bundle that includes:

- **Financing** in the form of farm inputs. Farmers enjoy a flexible repayment schedule, which suits the unique, seasonal nature of their work.
- **Distribution** of improved seed and fertilizer to within 2km of where our clients live.

- **Trainings** on proven agriculture techniques, delivered by a network of local field staff in farmers' fields.
- **Post-harvest and market support** through extensive training on post-harvest handling and storage, so that farmers can maximize profits from harvest surplus sales.

All of these services must be provided together. Without financing, seeds and fertilizer are unaffordable. Without training and market facilitation, farmers do not maximize yields or farm profits. And without delivery, these services may as well be on the moon.

One Acre Fund works solely with rural smallholder farm families, who farm less than five acres of land, and who lack the capital to purchase seed and fertilizer. Our average client is a female smallholder farmer with an average of four children. Average land sizes are around two acres. Farmers plant between 50-75 percent of their land with One Acre Fund.

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On average, One Acre Fund clients experience a 50 percent increase in income on every acre they plant with us. With the extra profits they generate from selling their harvest surplus, farmers are able to invest in productive assets, such as livestock, or in small business ventures. Many farmers choose to spend their extra income on school fees for their children, thereby investing in future generations.

One Acre Fund Uganda

One Acre Fund began its operations in Uganda in 2014. We learned valuable lessons from a trial we conducted in 2008² which informed the development of our current model for serving Uganda's smallholder farmers. We estimate the market size for farmers who would benefit from our model to be around 1.3 million.

We initiated our pilot with 150 farmers in Kamuli District. As of the 2015 season, we are serving 1,035 farmers. Our loan package includes 5kg of maize seeds and 25kg of fertilizer (for a half-acre of land), as well as funeral and drought insurance, and on-farm trainings on modern agriculture techniques. Farmers can also 'top up' their package by purchasing solar lights and storage materials mid-season. We have now started an expansion programme in Jinja District, which will see our operations grow further in the 2016 season.

In 2014, for farmers enrolled in our

programme, we calculated a 300 percent increase in average maize yield, and around US \$140 in incremental profit per acre planted with us. We achieved a loan repayment rate of 96 percent – a strong repayment rate for a first-year pilot³. One Acre Fund has also achieved repayment rates between 98 and 100 percent in Kenya, Rwanda, Burundi and Tanzania, where operations have been established for years. A high repayment rate is a key indicator of customer satisfaction, and shows the value farmers place on our services.

Future Outlook

One Acre Fund builds for both -transformative impact and far-reaching scale in every solution. We calculate the potential market – the number of farm households in Sub-Saharan Africa that could benefit from our unique, comprehensive model – to be 50 million. Faced with this enormous opportunity, we aim to serve one million farmers by 2020⁴.

One of the most powerful tools for achieving this ambitious growth plan is our new country scouting platform, through which we trial and launch our programme in new areas. By 2020, new clients in countries we are not yet serving will constitute 20 percent of our total client base; by 2030, they could exceed 50 percent. New country scouting is a critical driver for One Acre Fund's vision of reducing hunger and poverty on a global scale.

² One Acre Fund (2008), "Lessons from One Acre Fund's First Uganda Pilot", One Acre Fund Resource Library, https://www.oneacrefund.org/uploads/all-files/One_Acre_Fund_Uganda_Pilot_Failures.pdf.

³ *Editor's Note:* Indeed, a 96 percent repayment rate for agricultural production lending is impressive, but is by no means unique. Pilot programmes frequently achieve very satisfactory results while they have the full attention of the sponsors. The real test is the five year repayment rate, over which period a variety of seasons will have been experienced, illnesses and deaths encountered and the participating farmers are likely to have received progressively less extension and financial management advice. It is understood that One Acre Fund's current intensive field supervision and sound loan package design has resulted in very high repayment rates over a number of years elsewhere in East Africa, and has expectations that the future Ugandan repayments will follow a similar trend.

⁴ *Editor's Note:* The goal is laudable, but achieving anything like this total will mean overcoming significant challenges, not least recruiting and paying the costs of the numbers of qualified and motivated field staff required. This is all the more important given the prevalence of fake or sub-standard inputs on the market in East Africa and elsewhere in the Continent. This situation highlights the need for suppliers to farmers to have the means for avoiding these being provided to participants, possibly by substitution of the genuine fertilizer originally supplied by One Acre Fund, for fraudulent products.



Section 2: The link to financial services

Smallholder farmers are small business owners. Though they are not always able to invest the kind of capital needed to make their farms optimally productive, they have developed mechanisms such as merry-go-round savings groups⁵, which enable them to moderately improve their farms' productivities.

After nearly a decade of serving smallholder farmers, One Acre Fund has come to realize that certain financial tools and services are better suited to address the unique barriers smallholder farmers face.

Flexible Repayment

To meet client needs cost-effectively, on a large scale and in difficult operating environments, microfinance institutions (MFIs) have relied on simple and standardized loan products. While these have been effective for many clients, particularly the urban poor, they do

not sufficiently meet the needs of rural smallholder farmers.

Smallholder farmers experience lumpy cash flows due to the seasonal nature of their work. The investments they make in farming provide a slower and less predictable return than other businesses. Because of these unique circumstances, farmers require financial products that offer flexibility. Traditional microfinance loan products – which do not typically have flexible repayment schedules – are not well suited to smallholder farmers' financial needs.

One Acre Fund has designed a loan product that offers farmers fully flexible repayments. There is no repayment schedule, and borrowers can pay as little or as much as they want at any time, as long as they complete repayment by the final deadline. This flexibility allows farmers to closely match repayments to cash flow, which reduces pressure on household finances.

⁵ One Acre Fund (2014), "Saving Together for a Better Life in Kenya", One Acre Fund Blog, <https://www.oneacrefund.org/blogs/tag/merry-go-round/463>

Editor's Note: Savings groups with various names and using a variety of methodologies have existed for many decades in Uganda. The more formal expression of these ROSCA-type groups, the VSLAs, are described in detail in Rippey, Paul and Majara, Grace "Savings Groups Filling an Important Gap in Financial Services" pp.146-153 in the *Agricultural Finance Yearbook for 2011*.

Delivering flexible repayment products means lenders have to adjust the way they manage credit risk, portfolio quality, and liquidity risk. It can also require IT development and additional staff training. However, the tools and processes to manage these challenges are relatively straightforward to develop, and any upfront operational burden is significantly outweighed by the long-term impact of reaching a large new market of clients: smallholder farmers.⁶

Loans in kind

For many MFIs, farmers are inconvenient. Their lives and livelihoods do not fit neatly into traditional disbursement and repayment regimes that have proved successful for urban clients. Their cash flows are unreliable, and can change with the direction of the wind.

To fit the needs of these farmers, One Acre Fund provides tangible goods to our clients, rather than cash. The key features of our model are:

- Procurement of high-quality farm inputs, including improved seed and fertilizer.
- On-time distribution of those inputs to a location within walking distance of farmers' homes.
- Training on how to use the farm inputs correctly to maximize return on investment.

The combination of these factors produces greater productivity, increasing income per acre by 50 percent and generating a dollar impact of roughly US \$135 per farmer – the net income increase after costs such as labour, seed, fertilizer, ploughing, land rental, chemicals, and input transport.

Each season, we calculate our basic impact metric – dollar gain in farm income – by physically weighing harvests and comparing the farm profits of a random set of One Acre Fund farmers to a random set of either 'likely-to-enroll' or 'newly enrolled' farmers, thus forming a highly similar comparison group. Dollar gain in farm income is calculated as the differential profits of One Acre Fund and comparison group farmers on the products and services we offer.

Loans in kind provide farmers with access to consistently high-quality inputs and other products that might otherwise be difficult for them to obtain. They also ensure that the full loan amount is invested in productive inputs and not diverted to pay for other household needs. This increases impact for the farmer and hedges risk for the lender.

Section 3: Results to date and sustainability

One Acre Fund uses three core metrics – scale, impact and sustainability – both to ensure our approach is achieving the maximum impact for our clients, and that we are on track to achieving our operational goals.

In 2006, our first year of operations, One Acre Fund served 300 farm families. In the last nine years, we have grown to serve over 280,000 clients. Our solution is built to be broadly scalable, and we will serve up to one million farm families by 2020.

The number of clients an organization serves is a critical factor in its overall impact. To accelerate progress toward overall impact, One Acre Fund places equal emphasis

⁶ One Acre Fund (2015), "Flexible Repayment at One Acre Fund", One Acre Fund Resource Library, https://www.oneacrefund.org/uploads/all-files/White_Paper_Farm_Finance_Flexible_Repayment_FINAL.pdf

on scale and impact. One Acre Fund's 'Scale Innovations' Department is a Research & Development (R&D) laboratory for operational improvements to our core delivery model. In order to achieve transformative scale, the organization works both to scale up the One Acre Fund field units and to boost the efficiency of our operations through innovative systems⁷.

In 2014, One Acre Fund's average client impact was US \$159. To calculate this, One

Acre Fund's Monitoring & Evaluation (M&E) team first assessed the agricultural impact of our programme, which was US \$115 per participating farmer in 2014 and included farmer profit made from maize, sorghum, millet and beans. Using the latest methodologies, One Acre Fund calculates its agricultural impact by looking at average acres planted, crop revenue, crop costs and crop profit.

Table 1: Comparison of crop profits achieved by One Acre Fund participants vs. non-participants

Group	Maize Profit	Sorghum Profit	Millet Profit	Total Profit
OAF	\$442	\$26	\$73	*\$540
Non-OAF	\$371	\$12	\$43	\$425
Impact	\$71	\$14	\$30	\$115

OAF = One Acre Fund participant

Source: One Acre Fund's Monitoring & Evaluation (M&E) team

In addition to measuring dollar gain in farm income and agricultural impact, we also calculate the impact of non-crop products, which we test every year for their potential to generate savings and improve farmers' lives beyond their farms. Our average non-crop impact in 2014 was US \$44 and included farmer profit made as a result of

solar lights, grevillea trees, sukuma wiki (kale) seed and actellic dust. One Acre Fund calculates farmer impact from non-seasonal crops and non-agricultural products by considering product costs and revenue (from sales or savings) and combining average annual impact over multiple years.

⁷ One Acre Fund (2014), "Scale Innovations", One Acre Fund Resource Library, https://www.oneacrefund.org/uploads/all-files/White_Paper_-_Social_Enterprise_-_Scale_Innovations_FINAL.pdf

Table 2: Financial benefits of additional One Acre Fund products to participating farmers

Product	Net Present Value per Client	2014 Adoption Rate	Average Product Impact
Solar Lights	\$27	44%	\$12
Grevillea Tree	\$24	84%	\$20
Kale Seed (25g)	\$8	85%	\$7
Actellic Insecticide (200g)	\$5	100%	\$5

Source: One Acre Fund's Monitoring & Evaluation (M&E) team

With the added income from crop and non-crop products, One Acre Fund farmers are able to pay for school fees, purchase livestock, improve their housing, pay for health services, and create additional investment opportunities.

When farmers produce strong harvests, they are in a much better position to repay their loans. Across its operations, One Acre Fund has an average loan repayment rate of 99 percent, with operations in Kenya achieving 100 percent loan repayment in the 2014 season.

High loan repayment rates not only indicate client satisfaction with our services, they also allow One Acre Fund to cover the cost of operations and serve even more clients. Currently, farmer loan repayments cover 77 percent of our field operating costs (including field staff salaries, training materials and distribution of inputs, but excluding M&E,

product development, and R&D). Going forward, we are aiming to achieve full financial sustainability for field operations by leveraging economies of scale and trialing operational tweaks to improve efficiency of programme delivery.⁸

Section 4: Policy

Our programme directly serves 280,000 smallholder farmers in East Africa. By comparison, effective agricultural policy and policy implementation in just one country in East Africa have the potential to generate significant financial impact for tens of millions of farmers.

One Acre Fund works in partnership with government officials at the local and national levels across all its countries of operation. For example, in Rwanda, where we have been operating since 2007, we

⁸ One Acre Fund (2014), "Driving Financial Sustainability", One Acre Fund Resource Library, https://oneacrefund.org/uploads/all-files/White_Paper_-_Social_Enterprise-_Financial_Sustainability_FINAL2.pdf

participate in a policy process for non-government actors, called the Agriculture Sector Working Group. Our collaboration with the government through this working group has allowed us to participate in some of the agricultural policy changes that have occurred over the last seven years. We sit at a table with government representatives, private-sector entities, researchers, and non-profit organizations, and everyone has the opportunity to contribute their views. At

base, One Acre Fund and the governments in the countries where we operate are working towards the same goals: to improve farmers' harvests and food security, and to rapidly and permanently improve livelihoods in rural economies. We strongly value partnership with governments as an opportunity for productive exchange on policy and research developments in the agricultural sector.

2.2 SMARTMONEY – MOBILE FINANCE FOR RURAL COMMUNITIES¹



Section 1: SmartMoney- The typical clientele

Joseph and Annette live in Kigoro, a remote village in Kasese District. They have four children; two are schooling. Like most members of their community, they have a multi-layered livelihood strategy and diverse and irregular income sources. They engage in commercial agriculture and subsistence agriculture, as well as income generating activities that are independent of agriculture. They keep chickens and a few goats. For consumption, they grow matooke, cassava and beans. Occasionally, they help out in Joseph's brother Desiree's general shop, which sells food staples and consumer goods.

Coffee generates income for the household twice a year. In between the seasons, Joseph helps out at a construction site and Annette sells woven baskets and mats. She also sometimes earns a little extra tilling the land of other members of the community. Joseph's brother has a shop which sells food staples and hardware items to the local community. He also acts as a wholesaler, delivering to smaller shops in neighbouring villages.

Section 2: The demand for safe money storage and local payments

Mismatch between the timing of income flows and expenditure

While the income is often irregular, seasonal expenses are constant and have to be paid when they occur. Joseph and Annette have to cover daily needs such as food and soap, as well as larger expenses such as school fees and contributions to family funerals. Paying school fees for their children has always been a challenge as they earn a substantial portion of their income from a harvest that may fall months before or after school fees are due. In addition, there are often one-off unplanned expenses. Recently, the family contributed UGX 80,000 to the funeral for Joseph's aunt. Shortly after that, one of their goats got ill. They had to let it die because they could not afford the veterinary doctor.

¹Author: Michael Rothe, Managing Partner, SmartMoney, Uganda (michael.rothe@smartmoneyinternational.com)



Insecurity of cash

In the past, their income was further diminished because they did not have a safe place for their money and because of the high costs associated making cash payments. Two years ago, Joseph was robbed after delivering 100 kg of coffee to the local cooperative. The thieves, who had been waiting for him as they were aware that farmers were being paid, hit him with an iron bar and then forced him to give them the money he had. The attack both traumatized Joseph and took away income the family had worked hard towards throughout the previous months. As a result of this loss, they could not afford to pay the school fees and had to take both children out of school.

They would keep the income they earned at home; either in a box or under the mattress. Whenever they had large amounts, they felt uncomfortable and stressed as they feared somebody would steal it. Joseph did not want a bank account as he believes banks

“are not for people like him”. Also, they live far away from bank branches so that depositing /withdrawing would result in high transport costs. He also heard from other people in the village that the balance you hold with banks may decrease due to fees.

Disproportionate transactions costs – in time and money

a. Example: Payment of school fees

In addition to not having a safe place for their money, they incurred transport and opportunity costs related to cash payments. For example, Annette had to travel to the schools to pay the tuition fees. The journey would take 2 hours each way and cost her UGX 20,000. When arriving at school, she would have to wait in line for at least another two hours. As a result, she would lose an entire day of work in which she could have got extra income by hoeing land for others or weaving mats and baskets. So on top of the 20,000, she incurred large opportunity costs.

b. Example: Small business inventory payments

Joseph's brother Desiree, who runs the general shop in their village, restocks once or twice a week from Kasese town. He sells goods to retail customers in the village, and delivers to smaller shops in more remote areas. He used to go to town to pay his supplier for the stocks. The journey would cost UGX 20,000 and he would have lunch for UGX 3,000. At the same time, he had to close his shop, incurring a significant opportunity cost. He also thinks he lost a lot of business because the shops that buy from him did not want to come to deliver the cash for the supplies. Like him, the smaller shops have to incur large transport costs to deliver the cash. As they have much less turnover, they can afford the transport even less. Hence, they needed to wait for quite long before being able to buy from him. He sometimes gave them credit (advancing the supplies) but then some of them would not pay him back).

Section 3: SmartMoney offers a solution customized to the unique financial needs of rural communities

Safety of cash

As a result of their diverse income sources and expenditure patterns, Joseph, Annette and Desiree have diverse needs for financial services. To efficiently manage their financial lives, they need financial services that are customized to their needs. SmartMoney provides this to them. They now have a safe place to store their money. Joseph is paid with SmartMoney by the coffee cooperative

which buys coffee from him. The cooperative partners with SmartMoney and in fact introduced Joseph to the service. Joseph is very grateful. Soon after Joseph was signed up to SmartMoney, Annette registered at a market day in the community. Joseph is happy that he now does not have to worry about getting robbed anymore. Annette deposits the cash she makes into her SmartMoney wallet at a local shopkeeper. The shopkeeper accepts e-money instead of cash because it is safer and he can use it to pay for restocking. Annette also sometimes exchanges e-money with a neighbour for cash in much the same manner they might exchange cassava for beans - since there are no transaction fees, they simply swap. Because SmartMoney facilitates community exchange, SmartMoney does not rely on agents.

Local payments

Over time, the need for converting e-money into cash has lessened, as more members of their community have signed up for SmartMoney: neighbours, shopkeepers, butchers, hair salons, clinics and some boda-boda riders accept payments via SmartMoney. As a result, they can now settle most of their local payments with SmartMoney instead of cash. Seeing that there is no transaction fee, they even pay for small items like sodas with SmartMoney. Annette also uses SmartMoney to pay for school fees, as SmartMoney is partnered with the school. As a result, she saves on transport and has more time to pursue other activities. The school also benefits as SmartMoney helps to enhance fee collection.

Small business payments and financial management

Desiree uses SmartMoney as a payments and financial management tool for his shop. He receives payments from his retail customers who buy food staples and hardware from him. At the end of the day, he has the money in his SmartMoney wallet, instead of in a metal box. He also tells the smaller shopkeepers, whom he supplies, to send him SmartMoney. His business has increased since then as they now save on transport and can therefore buy goods from him more often. In addition, he saves on transport because he pays his suppliers with SmartMoney.

The link to conventional mobile moneytransfer

Once every quarter, Joseph and Desiree receive a mobile money transfer, via one of the services offered by telecom companies, from their third brother who works in Kampala. As soon as the money arrives, they withdraw it and put it into their SmartMoney wallet, because with SmartMoney they can always use the e-money to make local payments, and make free low value withdrawals when necessary. SmartMoney helps them to reduce risk, make cost savings and accumulate assets.

Agricultural value chain payments

SmartMoney also helps rural entities and firms that buy from farmers realize significant cost savings and make their operations more efficient. Agriculture companies and cooperatives can use SmartMoney to pay farmers electronically instead of with cash. This helps them eliminate the costs and risks

associated with cash handling. In addition, operational efficiency is enhanced and linkages with their farmers strengthened. Since SmartMoney is useful to farmers, they welcome being paid via SmartMoney and often even perceive it as a gift from their agricultural buyer. Farmers' buy-in is key for facilitating the transition from cash to e-payments. SmartMoney subsidizes its free-of-charge services through professional fees from its institutional customers.

Replacing cash with e-money in rural areas and bridging the gap to the formal financial sector

SmartMoney replaces large amounts of cash with e-money in rural areas. In accordance with the Bank of Uganda Mobile Money Guidelines 2013, SmartMoney collateralizes all the e-money it issues with an equivalent amount of cash held at its partner bank. By providing a formal financial service that is tailored to the unique requirements of rural communities, SmartMoney drives uptake of e-money far beyond conventional providers - bridging the vast gap that exists between remote rural communities and the formal financial sector.

To avoid money being sent to the wrong person, the SmartMoney system prompts users to confirm the name of the recipient before every transaction. The confirmation process is very simple: after the sender has entered the phone number of the recipient, the name of the person who is registered on SmartMoney with this number is displayed, and the sender simply answers "yes" or "no" in the SmartMoney USSD menu.

Editor's Note:

A quotation from the SmartMoney website is appropriate as it will help to answer many of the questions in readers' minds: <http://www.smartmoneyproject.org/about.html>

"SmartMoney has developed a proprietary mobile money service that can be accessed free of charge from any location in the world via standard GSM mobile phones and phone networks.

"SmartMoney is safe and secure. If a SmartMoney user loses their mobile phone, their money is not at risk. SmartMoney stores all electronic money and user account information in a safe and secure data centre environment located in Europe. SmartMoney administrators can easily access and restore a user's account access from a new phone, if their original phone is lost or stolen.

"To prevent someone stealing a user's phone and accessing that user's SmartMoney account, SmartMoney requires all users to enter a PIN code when logging into the service. The combination of a physical phone and a PIN code forms a reliable 2-factor security solution comparable to the security used for debit cards and ATM machines in Western countries."

2.3 FINANCIAL LITERACY TRAINING IN SUPPORT OF USE OF FINANCIAL SERVICES¹



Section 1: Introduction

Governments, donors, and regulated financial institutions across Africa have increasingly recognised that access to appropriate financial services can play a pivotal role in poverty alleviation and in decreasing the vulnerability of poor people. Though never part of the Millennium Development Goals set in 2000, financial inclusion as an issue has moved up the agenda of emerging and developing countries, including the establishment of the Global Alliance for Financial Inclusion² by G20 leaders at the Seoul Summit in 2010. This led to 35 emerging and developing countries' central banks committing themselves to financial inclusion in 2012.

However, financial exclusion has led to the development of resourceful indigenous community-based solutions like savings groups. By saving small amounts, groups gradually begin to save, and subsequently lend to members from their own capital.

Once a savings culture is established, some people go on to establish small businesses, improve the quality of inputs for their farming practices and with time, these activities generate an increase in income and hence the savings potentially will increase. As the group savings accumulate, the security of the group savings become a challenge and the need for a relationship with a formal financial institution becomes stronger.

Aware of the developing situation, Centenary Bank's linkage banking pilot project in the Karamoja sub-region in the North Eastern Uganda, implemented with the financial and technical support of the GIZ FSD programme, was designed with the overall objective being "to improve financial literacy and access to secure financial services for the rural population".

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²Alliance for Financial Inclusion is a global network of financial policymakers from developing and emerging countries working together to increase access to appropriate financial services for poor people.

This overriding objective was to be assessed on the following major targets:

- i. At least 200 Farmers Groups, VSLAs and SACCOs savings groups (each group approx. 20-30 members) will have opened accounts in Moroto branch of Centenary Bank by end of 2013.
- ii. At least 40 Farmers Groups, VSLAs and SACCOs saving groups will be accessing financial services including credit services in the first year of branch operation.

In pursuit of the foregoing targets, the pilot project had the following constituent facets: (i) establish a bank operation in Moroto; (ii) in collaboration with GIZ set up a linkage banking system; (iii) enhance financial literacy; and (iv) prepare an outreach programme.

With a target of mobilizing a total savings deposit value of US\$ 92.5 M and a result of US\$ 3,471.3 M being realized within a year, the innovative partnership between GIZ and Centenary Bank to extend formal financial services to the rural poor in the hitherto very deprived Karamoja sub-region has proved, yet again, that it is possible for a formal financial institution to reach the poorest people with formal, though basic, financial services.

Section 2: Objective of the linkage programme – the demand side

The Karamoja sub-region, located in North-eastern Uganda, is one of the most marginalized sub-regions in the country and one of the least developed in the world. Home to cattle-herding nomads, Karamoja

has been trapped in a cycle of conflict and neglect for generations, leaving 80 percent of its population below the poverty line. However, in recent years, security and peace efforts by the Government and development partners have seen the bulk of the one million population of Karamoja forego their nomadic tradition and settle down as crop-growing farmers.

The economic growth for the region, while slow, has still surprised many and the potential for development keeps growing. Karamoja is one of the most underserved areas in terms of financial services whereby only one percent of the rural population is estimated to be accessing bankable financial services³.

Poor people have traditionally not been considered viable clients for bankable financial services because of the number of the socio-economic barriers that preclude them from being financially included. The isolation of poor people from formal banking means they do not have the opportunity to understand and witness how banks operate. As such, poor people are inherently distrustful of these financial systems, which prompt some of them to exclude themselves.

It does not help that the processes to open a bank account are designed for clients who can produce identity documents including passport-size photographs and can demonstrate a regular source of stable income. Bank financial products did not accommodate seasonal cash flows and insisted on physical collateral to access credit, when the borrower/client had none to offer.

³ Baseline Study Report in the Karamoja Sub-Region by Friends Consult – Feb 2013

Up to the year 2012, there were only two banks in Karamoja, which targeted mainly corporate customers. The majority of the population remained unserved and they would have not understood let alone heard of the banking concept. People save informally under mattresses, in a hole in front of the *manyatta* (hut), or fastened to themselves. They have also formed savings groups known as Village Savings and Loan Associations (VSLA's) following a concept promoted by CARE International⁴. These are groups of 15 to 30 members (men and women) who form and follow their own constitution, with the main purpose to carry out saving and lending activities within the group.

There are elected office bearers to manage the group activities and keep records. VSLAs operate usually between 8 and 12 months, mobilizing and on-lending from savings at manageable interest rates to members. They then dissolve by sharing out the savings and profit in the form of interest among the members, in proportion to the individual savings of each member, before starting a new cycle. The savings of members grow on account of the interest charged and penalties for rule violations.

Linkage banking seeks to link these informal savings and credit groups to formal and or regulated financial institutions, which are regulated by the Bank of Uganda. Through this approach, it's possible for clients in remote areas to benefit from the services and competence of commercial banks. Members of VSLAs have also faced challenges.

These challenges are mostly related to the safety of funds and their remote location. Although the saving boxes are usually protected by three locks (with keys held by three individuals), the risk of theft remains. Many VSLAs have lost their money either by thieves stealing the whole box, or by their own group leaders misusing the money.

Section 3: Objective of the linkage programme – the supply side

Centenary Bank⁵, formerly, Centenary Rural Development Bank Ltd. prioritizes rural areas, with 67 percent of its branches operational in remote zones (as of Dec 2014). The bank has a deposit customer base of over 1,400,000 and approximately 125,000 borrowers with 75 percent of its loan portfolio in Microfinance, comprised of low income customers. From a humble beginning, the bank has steadily grown into one of the leading indigenous financial institutions in Uganda. Currently it has 63 branches, ranking it 2nd after Stanbic Bank in terms of national outreach.

Centenary Bank developed a partnership with GIZ with the main objective to improve financial literacy and access to secure financial services for the communities in the Karamoja sub-region.

The project established a Linkage Banking model, which involved recruiting a Linkage Banking Specialist whose primary role was to establish and maintain the relationship with various groups and NGOs. Accordingly, Centenary Bank developed different products to suit the linkage banking model, like CenteVSLA and CenteSACCO.

⁴ **Editor's Note:** For a detailed description of VSLAs structure and operations, see Rippey, Paul and Majara, Grace (2011) "Savings Groups Filling an Important Gap in Financial Services" pp. 146-153 in *Agricultural Finance Yearbook 2011*, Bank of Uganda and PMA Secretariat, Kampala

⁵ **Editor's Note:** For more detail on this important financial institution, see Kyanika, Abdul, "Centenary Bank's Agricultural Lending: The Story" pp. 40-48 in *Agricultural Finance Yearbook 2010*. Other articles on operations of this bank appeared in the Yearbooks for 2007 and 2008 (articles by Julius Segirinya) and 2011 (Abdul Kyanika).

A major cost to banks for serving the rural poor is that they have to maintain a large number of accounts, each having a low volume of financial transactions. Moreover there are challenges due to access issues with remote locations. This generally makes having an outlet in poor areas unfeasible. However, being based in, and run by the community itself, the VSLA model inherently lowers the cost to the bank of acquiring new clients. Thus, once the VSLAs have become established and the key persons properly trained, the bank has a new, ready potential customer base. Furthermore, the VSLA model aggregates individuals into groups, thereby lowering transaction costs for the bank. It is far more economical to have one group savings account than having 25 to 30 small, individual accounts.

Section 4: What is financial literacy (FL) training?

Financial literacy is defined as having the knowledge, skills and confidence to manage one's finances well, taking into account one's economic and social circumstances, where:

- *“knowledge” means having an understanding of personal financial issues;*
- *“skills” means being able to apply that knowledge to manage one's personal finances; and*
- *“confidence” means feeling sufficiently self-assured to make decisions relating to one's personal finances⁶.*

In August 2013, the Strategy for Financial Literacy in Uganda was launched. The Strategy was developed by a wide range of stakeholders, under the leadership of the Bank of Uganda. It aims to equip Ugandans with the knowledge, skills and confidence to manage their personal finances effectively.

Five “Strands” were identified, (FL in schools, FL and the youth, FL and rural outreach, FL at the workplace, FL via the media). Respective working groups then developed a limited number of priority activities for each of the Strands, based on the principles of cost-effectiveness (i.e. reach and impact vs. cost), sustainability and feasibility. These priority activities are now being piloted before being rolled out by various implementing partners.

Methods used include: Training of Trainers, presentations to various target groups, reading materials in the form of core messages, booklets and training guides. Innovative tools like E-learning solutions, financial literacy games and mobile applications are also being developed under Public Private Partnerships with the private sector.

The linkage banking project in Karamoja became a mutually convenient partner with Financial Literacy efforts under the ‘Rural Outreach Strand’ of the Strategy. Indeed, it was thought to be the most efficient way to include the financially isolated poor in the financial literacy initiative. The lack of understanding of financial products stemming from financial isolation led poor people to distance themselves from formal financial institutions⁷.

⁶ Strategy for Financial Literacy in Uganda, Bank of Uganda, Kampala, August 2013

⁷ Editor's Note: This is only part of the story. Many people had had bad experiences with SACCOs in the sub-region. They had previously saved with them, their funds were mis-used and the SACCOs collapsed, leaving people terribly “out of pocket” and frustrated with institutionalised saving.

A study of how VSLAs could link to Centenary Bank found that, although the bank had some products which were suitable for the needs of poor people, the same people either had no knowledge, or an incorrect understanding, of those products. They were therefore reluctant to use them. Evidence also shows that poor financial literacy represented a significant barrier to accessing and properly using formal financial services⁸.

Financial literacy is particularly important as it is intrinsically linked to consumer protection. With greater knowledge people are less likely to fall victim to unscrupulous moneylenders, or to financial service providers who might be offering inappropriate products, with no transparency and high interest rates. Increased financial education is also in the interests of banks and other financial service providers, as people who are financially enlightened are more likely to use formal financial services.

Section 5: Financial literacy training targeted at Centenary's Bank's linkage programme

The approach used to improve financial literacy of the target group was phased, starting with the training of trainers (ToT). First, individuals to conduct this first phase of training were identified from existing groups, with a view to having Community Based Trainers (CBTs) to provide regular and reliable support to the groups and/or their members. Centenary Bank recruited the trainers from already established groups, supported by locally operating Civil Society Organisations (CSOs).

The initial group of trainers recruited from the selected groups was a combination of leaders and Community Development Officers (CDOs). In subsequent stages of ToT workshops, the composition of participants was widened to comprise ordinary group members to ensure deepening of knowledge and skills acquired amongst the targeted communities.

The **trainees** who after the **first phase** had become **trainers** were paid to pass on the training to the entire group members. This payment was made available on confirmation by Centenary Bank's Linkage Banking Specialist that they had effectively trained their respective group members.

For the **second phase** of the training, the Linkage Banking Specialist continued to oversee action, championing the monitoring and remuneration of the trainings, which were carried out on a weekly basis. The trainers were required to present reports of the trainings. For effective undertaking of the trainings, District leaders, political leaders and VSLA boards also participated in the mobilization of participants into the trainings. Other methods of mobilization involved mobile communication and formal letters of invitation.

The training sessions for both first and second phases included topics such as debt management, enterprise selection, governance and management, bookkeeping/records management and constitution drafting, as well as bank products and services. The topics are set out in Table 1.

⁸ Baseline Study Report in the Karamoja Sub-Region by Friends Consult – Feb 2013

Table 1: Financial Literacy Training Topics

Topics	Remarks
Saving mobilization and personal financial management	Ways of saving and managing finances; financial negotiations
Debt management	Methods for managing debts
Banking operation	How Centenary Bank operates and the products involved
Enterprise selection	The variety of businesses from which to select.
Business planning	Planning for business and developing these plans.
Governance	Constitution drafting, record keeping & minute writing

Section 6: Evaluating effectiveness: The mechanisms and results

Many people question whether this population is too poor to save, but evidence suggests otherwise. Associated benefits for the bank that accrued from the linkage banking model include:

- a. Bank deposits increased, as did numbers of customers of the bank, because financial literacy enlightened VSLA members on the benefits of financial institutions;
- b. It also meant increasing the catchment area of bank operations - coverage of more clients and areas, especially in remote areas where there are no other financial institutions;
- c. It promoted associating with more partners in serving distant areas, because it involved use of NGO partners who helped in the mobilization of the groups at the grassroots.

For VSLAs, and for their members, the linkage programme meant substantially increased safety. Although groups did not incur any costs by saving in their group safe

deposit boxes, they did incur a security risk. In addition, the linkage meant the start of communication with a financial institution⁹, building a relationship that could lead to access to loans.

The effectiveness of the financial literacy training was evaluated by means of a brief survey involving 182 respondents, spread over 7 Districts. The results of the trainings are presented in the remainder of this Section.

Budgeting

Through participation in the Financial Literacy programme, 94 percent of the respondents had acquired knowledge of budgeting while 56 percent of these had written budgets. By contrast, 67 percent of those who did not participate in the training had no written budget. Approximately 35 percent of the respondents revealed that the main focus of their budgets was on basic necessities with the remainder focusing on investments in business and contingencies.

⁹At first, it was of course more expensive to save with Centenary Bank, e.g. from Amudat they spent UGX 80,000 to undertake the round trip to the branch in Moroto. However, the bank tried to reduce this type of expense by deploying the Linkage Banking Officer to the field to collect deposits, on a regular basis.

Savings

All respondents were in the practice of saving through their groups. Some 83 percent of the participating respondents indicated that they were now able to track their income and expenditure, while 30 percent of the respondents were able to attribute more than 50 percent of their investment capital to savings. An equal proportion of the respondents were not able to establish the amount of savings in their investment capital

In terms of perceptions of the importance of savings, 39 percent revealed it was crucial

for a “rainy day” while the rest felt that it was important in order of ranking for (i) meeting school fees obligations, (ii) buying food during famine, (iii) starting a business, and (iv) covering medical bills. The study showed that 50 percent of the respondents had identified budgeting as key in reducing expenditures and about half of these stated that the regular saving routine with their VSLA had assisted them in reducing expenditures. As a result 44 percent of the respondents were able to save UGX 50,000-100,000¹⁰.

Table 2: Project Results by Implementation Component

Project component	Project target on commencement (2013-2014)	Achieved as at August 2014
1. No. of groups mobilized	200	1,235
2. No. of group members reached/mobilized	4,000	14,857
3. No. of trainers trained (TOT)		145
4. No. of groups trained	200	851
5. No. of group members trained	4,000	8,063
6. No. of accounts opened	200	1,832
7. Total deposits mobilized (UGX)	92,500,000	3,471,350,420
8. No of agencies established	2	2
9. CenteMobile platform (No. of VSLAs served)	185	150

Source: Centenary Bank Linkage Banking Specialist's Reports, 2013-14

¹⁰ Editor's Note: Unfortunately the period of time over which these levels of savings were built up is not stated in the report of the evaluation team. Suffice it to note that the overall savings collected and deposited with Centenary Bank, as recorded in Table 2, were very substantial. Again, though, sharp-eyed readers may ask for the counter-factual situation that would have been provided by data on non-linkage VSLAs. However, this angle was not examined in the survey.

Scope for Replication

The linkage banking initiative has shown tremendous unexpected results as shown above. This hints at wider potential benefits for Centenary Bank in the long-term since more than 85 percent of Ugandans live in the rural areas and most of these are excluded from formal financial services. This means that the untapped potential for these unbanked clients is enormous for Centenary Bank.

The experience to date with Centenary Bank in promoting direct linkages with informal savings groups like VSLAs has used the physical infrastructure of bank branches with appropriate products synthesized with non-financial benefits. By contrast, mobile banking offers the potential not only to address the distance barrier, but also to reduce the overall cost of banking and must be considered.

Centenary Bank is already exploring possible mobile technology solutions that cater to poor people, using the CenteMobile platform. It sees mobile banking as a key future opportunity for reaching out to the poorest people in the nation.

Section 6: Policy and other government action

Under the *Strategy for Financial Literacy*, led by the BoU, and working with development organisations like GIZ, a number of interventions and innovative ways of imparting financial literacy have been designed and piloted across the country. The linkage banking project with Centenary Bank comes within this group.

The Ministry of Finance, Planning and Economic Development through its Microfinance Department will also manage a 7 year IFAD-funded Project for Financial Inclusion in Rural Areas (PROFIRA). This \$36.6 million project is designed to help 576,000 financially excluded rural households, particularly women and young people, to improve their economic activities, livelihoods and access to financial services. Materials derived from Bank of Uganda's *Strategy on Financial Literacy* will be used to train recipients of PROFIRA in financial literacy.

What policy adjustments would help build a better platform for sustainable linkages?

The linkage banking initiative by Centenary Bank and GIZ in Karamoja has shown that it is possible to bridge the gap between the formal financial institutions and Uganda's poor. It requires upfront investment from both sides and the intermediary role that development agencies like GIZ play will be critical. There is a need to build on the Karamoja experience and take it to scale in a commercially viable way. Below are some key recommendations that will help accelerate progress:

1) **Savings Groups** are a major entry point to financial inclusion. Saving in this way can lead to a graduation towards individual formal savings, a goal for financial inclusion. Specifically:

- Governments, donors and financial service providers could support the scale-up of savings groups, for example by working with mobile companies to develop enabling technologies such as group pin codes;

- Governments should recognise, community savings groups and incorporate them into long-term national financial inclusion strategies;
- As in India, where banks are mandated to open accounts for community savings groups, the Government should work with formal financial service providers to ensure that savings groups can access formal financial institutions.

2) Building **bridges** between formal and informal financial sectors is facilitated by viable 'financial linkage' models that can be replicated by other banks and informal savings communities. This should be supported and promoted by donors and international financial institutions. Specifically:

- Development agencies should seek to invest in innovative financial linkage models to help lower the risk for business, as successfully proven by GIZ in the Karamoja linkage project;
- Banks need to invest in products and services that can meaningfully reach unbanked people, including women and young people in the poorest communities, while also being prepared to empower their staff with the ability to provide financial literacy services;
- Banks should adopt a set of agreed 'linkage principles' that protect customers and 'do no harm', and should empower their staff with the ability to provide financial literacy services to their clients;
- Mobile telecom providers, banks and Government should work together to increase the use of mobile technology to increase outreach of banking transaction points e.g. e-money agents.



- The Government should expedite the passing of the Financial Institutions Amendment Bill 2015. This would enable banks to engage in agency banking allowing them to bring financial products closer to the excluded communities, thereby reducing transactions costs for both financial institutions and customers, including their time, money and risk.
- 3) Increased **financial education** is in the interests of both the Governments and of financial service providers, as people who are financially educated are more likely to use formal financial services. Specifically:



- It is notable that the Government, through the Ministry of Education and Sports, has sought to incorporate financial education in the lower secondary school national curriculum, currently undergoing review. Government should also look to adding financial education in the primary and vocational institute national curricula, and also look at how they can incorporate financial literacy in social protection programmes like the NSSF pensions scheme.
- Bank agents, mobile providers, other private sector actors and NGOs should provide training on business skills and entrepreneurship to village savings

groups in order to maximise the benefits of increased financial literacy.

4) Financial **consumer protection** is vital for poor and vulnerable people. It is commendable that Bank of Uganda introduced financial consumer protection guidelines to the regulated financial institutions in 2011 and has embarked on a nationwide awareness campaign to let the people know their rights and responsibilities. If group accounts with formal providers continue to increase in number, consumer protection policies will need to reflect this trend and ensure these accounts remain appropriate and fair for customers.

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2.4 SEGMENTATION OF FARM HOUSEHOLDS IN UGANDA: PRELIMINARY RESEARCH RESULTS¹



Section 1: The objective

Smallholder households in Uganda manage a range of income streams, related to and apart from their agricultural activities, as well as numerous expenses. Their household cash flows tend to be volatile, cyclical, and risky, and yet they have few tailored financial tools to manage this complexity and invest in their future. While the sheer magnitude of this client group - over 3 million smallholder households in Uganda, among an estimated 500 million worldwide² - gives it an important role in advancing financial inclusion, its diversity and the opportunities to better serve it have not been well understood.

In 2015, CGAP and GIZ embarked on a nationally representative household survey to explore the financial and agricultural lives of smallholder households in Uganda. This research was designed to outline a portrait of smallholders at the national

level in Uganda and then detail the four to six key profiles of smallholder households, considering their various income sources (in and outside of agricultural production), market relationships, financial tools, risk profile, attitudes, and a range of other variables. The results should identify opportunities to improve the financial tools for each segment of smallholders, and inform financial service providers, mobile network operators, government partners, and funders about the business case to do so.

Section 2: Survey methodology

Building upon other household surveys in sub-Saharan Africa (e.g. agricultural censuses, Living Standards Measurement Study, FinScope, AgFiMS), as well as the 2013 CGAP

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² See Meyer, Roberts and Mugume. *Agricultural Finance in Uganda: The Way Forward* FSD Series No. 13. 2004.

global segmentation³, this methodology and survey instrument were designed in close cooperation with the Uganda Bureau of Statistics.⁴

A household listing operation was conducted in the selected Enumeration Areas “(EAs)” between 15 July and 7 August 2015 to identify households engaged in agriculture, in all their varying forms, and construct a reliable sampling frame. To identify the overall population of agricultural households eligible to be sampled for this research, designed to elucidate the various subgroups of smallholders, the listing exercise identified households that:

- a. Managed up to five hectares of land and/or who raised fewer than 50 heads of cattle, 100 goats/sheep/ pigs, or 1,000 chickens; and,
- b. Reported that their agricultural activities made a meaningful contribution to their household income, in-kind consumption, and/or livelihood.

Then, using a stratified, multistage sample, each region was classified into urban and rural areas based on the 2014 population census and the sample was selected independently in each stratum. The 216 EAs were selected as primary sampling units with probability proportional to the number of households in the EAs, and then 15 smallholder households were

selected in each EA with equal probability, which yielded a total of 3,240 smallholder households in the sample.

To capture the complexity of smallholder households, the questionnaire consisted of three parts, with certain questions asked of all relevant individuals in the household (see Table 1). The questionnaire was translated into nine languages—Acoli, Ateso, Langi, Luganda, Lugbara, Lugishu, Lutooro, Ngakaaramojong, and Runyakole—and then pretested and validated in all nine languages. Data collection took place from 16 August to 7 September 2015 using computer assisted data collection tools that regularly submitted data for analysis and quality control in order to provide timely feedback to field staff.

To answer the research questions and better understand smallholder households in Uganda, a multi-faceted analytics approach uses topline analysis, behavioral regression analysis, and comprehensive consumer segmentation modeling. This article shares the earliest results and preliminary data from this research, and the finalized data, analysis, and segmentation will be published in forthcoming papers. (These data are considered preliminary as they were undergoing final cleaning and checking at the time of publication.)

³ See Christen, Robert Peck, and Jamie Anderson. 2013. *Segmentation of Smallholder Households: Meeting the Range of Financial Needs in Agricultural Families* Focus Note 85. Washington, D.C.: CGAP, April.

⁴ CGAP retained the services of InterMedia to manage the survey in partnership with Ipsos Uganda. Additional national surveys and segmentations of the smallholder sector, led by CGAP, are also underway in Mozambique, Tanzania, Côte d’Ivoire, and Bangladesh.

Table 1: Smallholder survey in Uganda: Questionnaire sections, respondents, and content

Questionnaire section	Household respondent(s)	Sample size	Content
1) Household Survey	Head of the household, their spouse, or a knowledgeable adult	n = 2,870	• Basic information on all household members (e.g. age, gender, education attainment, schooling status) • Information about household assets and dwelling characteristics in order to derive poverty status
2) Multiple-Respondent Survey	All household members over 15 years old who contributed to the household income and/or participated in its agricultural activities (x)	n = 5,517	• Demographics (e.g. land size, crop and livestock, decision-making, associations and markets, financial behaviors) • Agricultural activities (e.g. selling, trading, consuming crops, livestock, suppliers) • Household economics (e.g., employment, income sources, expenses, shocks, borrowing, saving habits, investments)
3) Single-Respondent Survey	One randomly-selected adult in the household	n = 2,770	• Agricultural activities (e.g. market relationships, storage, risk mitigation) • Household economics (e.g. expense prioritization, insurance, financial outlook) • Mobile phones (e.g., usage, access, ownership, desire and importance) • Formal and informal financial tools (e.g., ownership, usage, access, importance, attitudes toward financial service providers)

Section 3: Initial findings

The initial findings indicate that the aspirations do not match the actual behaviors of smallholder households in Uganda. Overall, smallholders in Uganda were acutely conscious of best practices for financial management of their household as well as their farm. They perceived it important to take care of their land, and they knew what they need to do to care for it. They considered savings and

other financial tools are important, as well as education and planning for the unexpected, yet they often lacked agency to pursue these priorities. Smallholders made do with what they had, entrusted their farm to support them, and invested what they could back into their own farm and production. The following sub-sections detail observations about farming mindset, financial products awareness and usage, and mobile phone connectivity among

Farming Was The Pride, Identity, And Core Sustenance Of Smallholder Households.

smallholder households in Uganda.

It is common for smallholder households to be diversified in income and activity as a general practice, but the nucleus of the household was farming. Agriculture shapes their identity, their legacy to their children, or where they see opportunities for financial growth and investment. Compared to their many other income streams, smallholders often indicated that crop and livestock production is their preferred source of income. Farmers tended to enjoy their work, and had a positive outlook on their future in agriculture. Their household's financial situation may be precarious—one-third reported that they do not have enough money for food—yet there was immense pride in agriculture and what they had achieved for their family.

Common features

There are a number of other unifying characteristics among smallholder households related to their sales, consumption patterns, and attitudes towards farming.

- Each crop was grown for multiple purposes. Most households typically sold and consumed what they grew, but trading was uncommon.
- Livestock played a key role in agricultural production: Approximately two thirds of smallholder households were raising some kind of livestock. Many raise livestock for household consumption, sale, and even investment. About half of households had purchased livestock as an investment.

- Smallholder households sold their crops or livestock largely outside of contracts. Very few smallholders had a written agreement with a buyer to purchase their agricultural production. Most sold their production into loose value chains close to their location. Exchanges were done almost universally in cash, with less than one percent getting paid in some other form (e.g. cheque, EFT, mobile banking, in-kind).
- The majority of smallholders in Uganda purchased inputs regularly, mostly from a retailer and almost universally in cash. Payment in any other form is in the single digits only. A small portion, however, were given the option by their suppliers to pay for their inputs later. A much smaller portion of the sample did not purchase any kind of agricultural inputs.

Diversity

Notwithstanding these larger trends, smallholders in Uganda are not a monolithic group. They demonstrate a great deal of diversity in household management, tenure in farming, farming choices, and value chain relationships.

- Heads of smallholder households were typically male (76 percent), yet farming decisions were not as gendered. Farm management and decision-making were reported as the purview of men, women, or shared by both.
- Over half of smallholders had been farming for more than a decade (58 percent), but there were new entries in agriculture too. Over 40 percent

of smallholders in Uganda had been farming for fewer than five years.

- Some crops are clearly important, such as maize, beans, cassava and coffee, but no one crop dominated the smallholder landscape for either consumption or sale. Selling crops, livestock, or their byproducts was usually done in the village or local market, but not necessarily by choice. Half of smallholder farmers reported they do

not have any transportation to other markets, and were forced to sell their goods where they can.

- Agriculture is the thread running through the smallholder sector, but its role in the household's livelihood was perceived in different ways. Almost two-thirds of smallholders considered their agricultural activities a business (63 percent), and there was openness to full-time work outside of agriculture if available (63 percent).

Figure 1. Gender of head of household

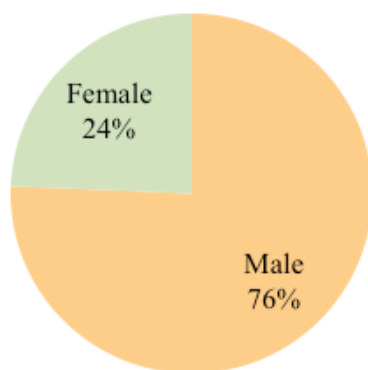


Figure 2. Length of time farming

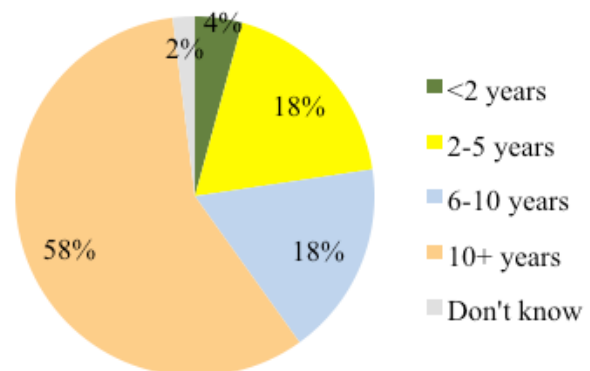


Figure 3. “Do you intend to keep working in agriculture?”

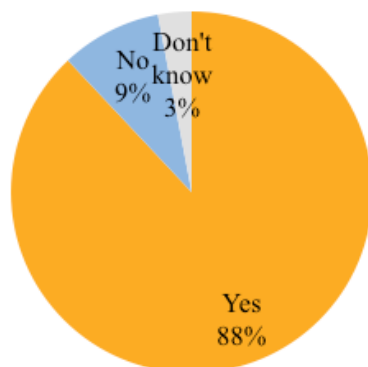


Figure 4. “Do you consider your farm to be a business?”

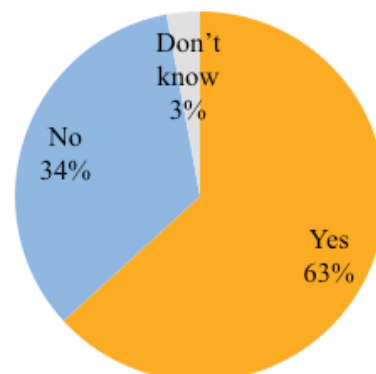


Figure 5. “Do you agree or disagree with the following statements?” Reported “Agree” answers



Figure 6. “Which of the crops that grow do you get the most money from selling?”

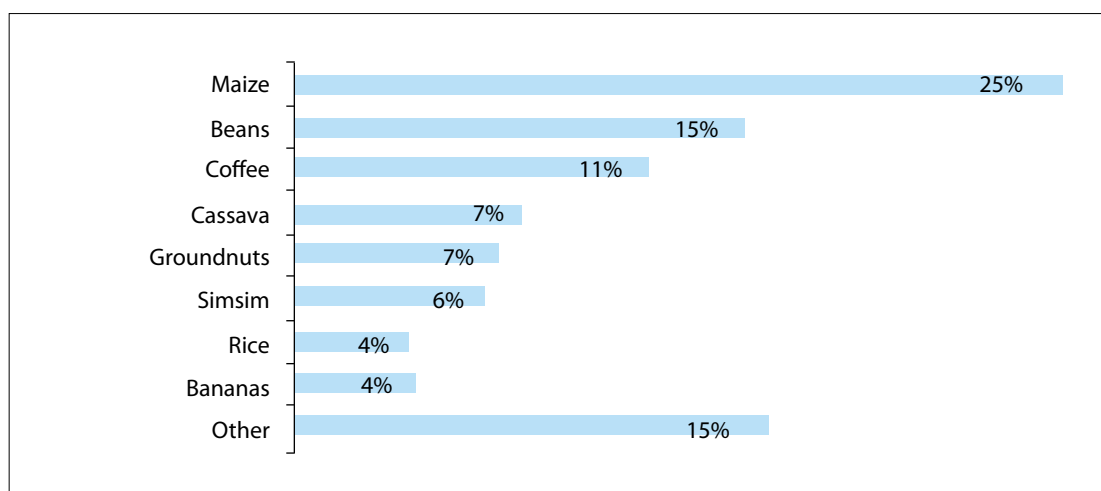


Figure 7. “Do you have any livestock, herds, other farm animals, or poultry?”

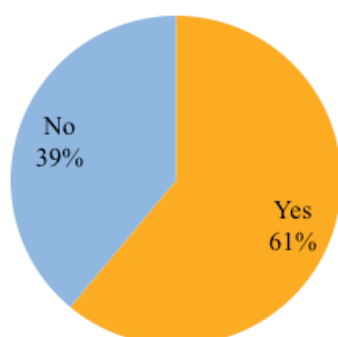
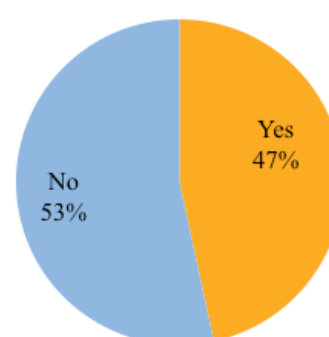


Figure 8. “Have you ever purchased livestock as an investment?”



Financial aspirations of smallholder households focus on agricultural production.

Money management principles and goals reflected the desired viability of the farm as well as the importance of the children's education. It can happen, however, that these and other household commitments leave little to no reserves in the event of an emergency, as only a minority of smallholder farmers were currently saving money. Overall, smallholders tended to appreciate the importance of good financial management, including approaches that emphasized savings, educating the children, building up a reserve for emergencies, and investing in their farm.

But their reality means that there was often little left over to save, as a result of prioritizing the farm or educating their children. Smallholder households lacked reserves to help them through financial shocks or emergencies, and instead relied upon family and friends when they needed support.

- Almost 80 percent of smallholders reported that it is very important to invest in their farm. This ranked highest when compared to investing in a future educational opportunity, a home, or a home improvement.
- Smallholders considered saving important, especially for school fees, and yet very few were able to regularly put money aside. Less than half of the sample reported that they were in a position to save through any formal or informal channels in the past year. Savings with friends and family was most prevalent (34 percent).
- If they experienced a financial shock and needed money quickly, only about a quarter of smallholders thought that they could come up with the emergency money in the next month. They indicated that they would first borrow money from friends and family, and then use whatever savings they had.

Figure 9. “What do you save for the most?”

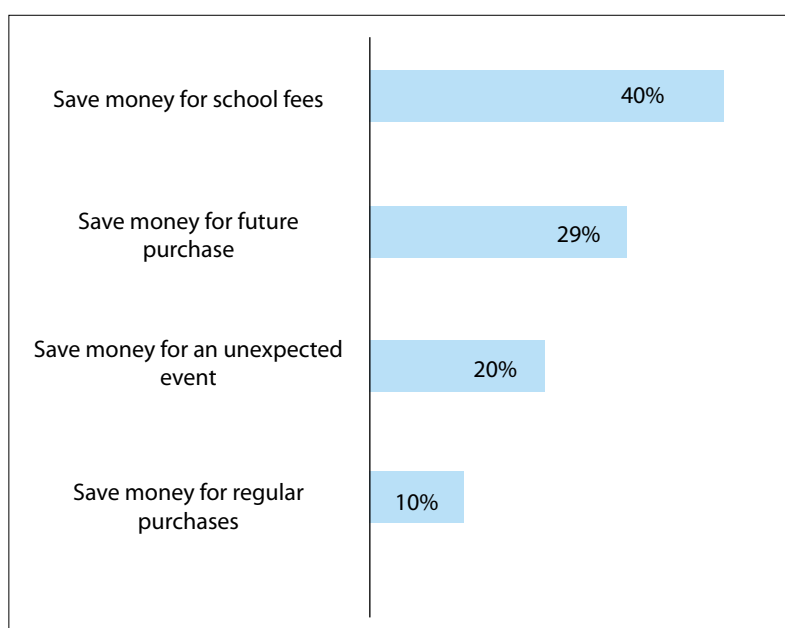
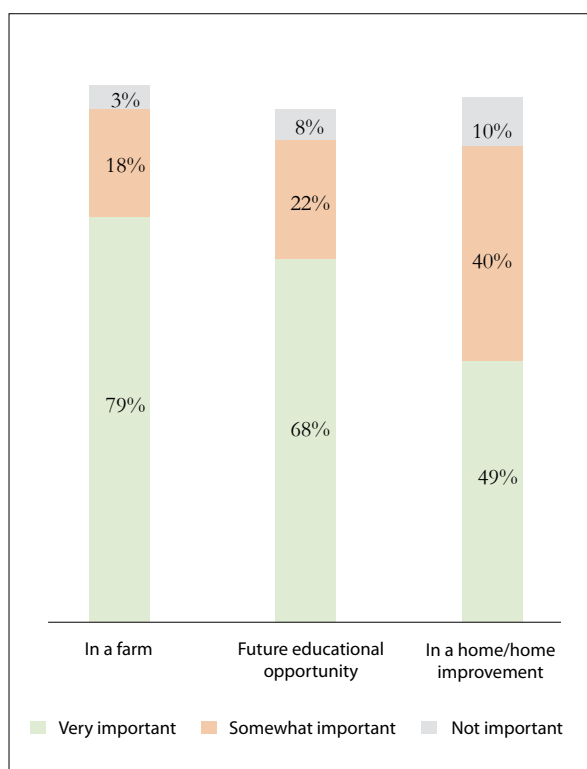
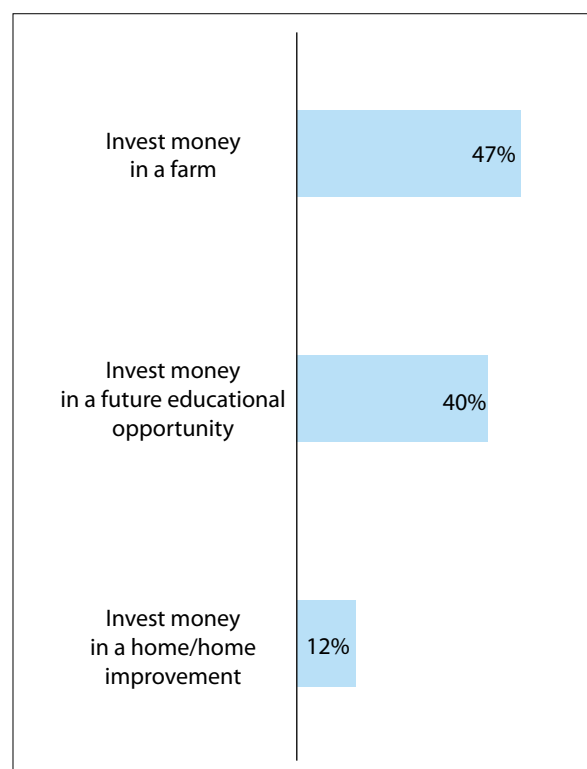
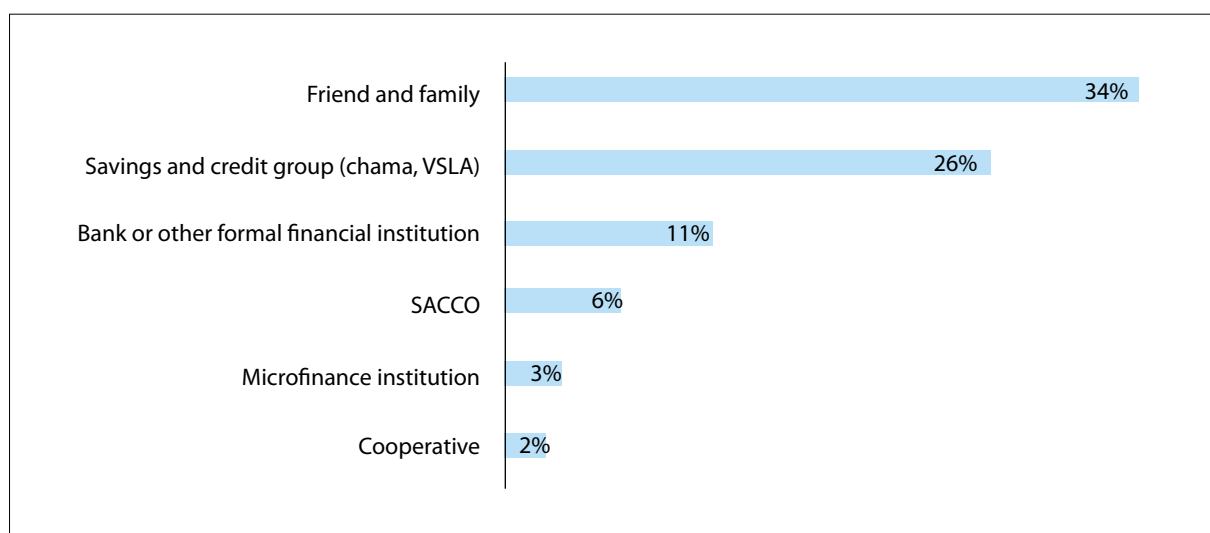


Figure 10. “How important is it to invest in each of the following?”**Figure 11. “What do you do the most?”****Figure 12. “In the past 12 months, have you saved money with any of the following?”**

Smallholder households considered financial tools relevant and important, but they remained largely out of reach.

Smallholder farmers were largely unbanked; they recognized the importance of financial accounts, but tended not to have them. Mobile money is the most familiar of financial tools. Almost nine-in-ten had heard of mobile money (87 percent) and the broad majority considered it their most important financial tool (66 percent).

Smallholder households were relatively less familiar with banks; most had never been inside one (67 percent). Though they tended to appreciate the importance of both bank and savings accounts, only 14 percent had their own account or could use someone else's. The low usage of formal financial service providers was not due to the widespread use of non-bank financial institutions in their place. Only 8 percent of smallholder farmers had ever used a SACCO and only 6 percent had a current account or membership with one; both microfinance institutions and cooperatives garnered only single digits for the percentage of the

sample with accounts or membership. Other financial tools such as savings accounts and insurance were not widely utilized either, though smallholder households considered savings accounts important for their agricultural activities (55 percent).

In terms of the perceived importance of various financial tools, smallholder households reported that for their family needs they considered mobile money accounts (66 percent), non-savings bank accounts (61 percent), and savings accounts (57 percent) very important. Related to their agricultural activities specifically, respondents again indicated that mobile money accounts (61 percent), non-savings bank accounts (51 percent), and savings accounts (55 percent) were very important to them. Credit, however, was considered less critical. Much smaller percentages of smallholder households indicated that credit was very important for their household needs (22 percent) and agricultural activities (21 percent).

Figure 13. “Do you have a bank account?”

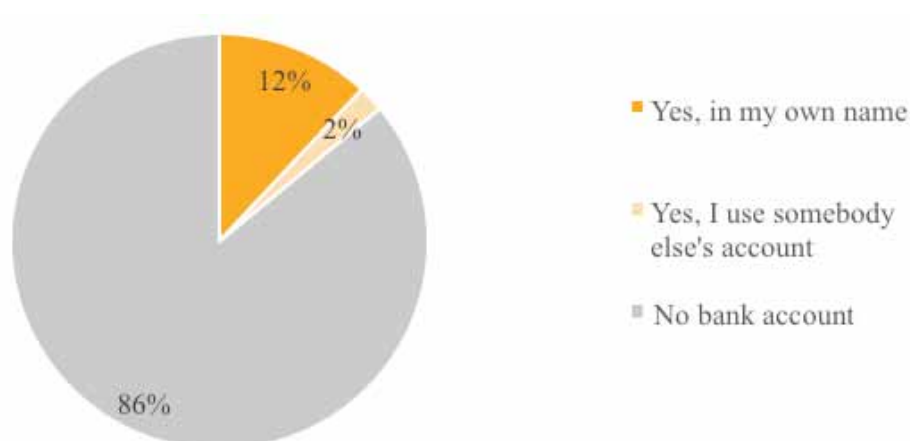


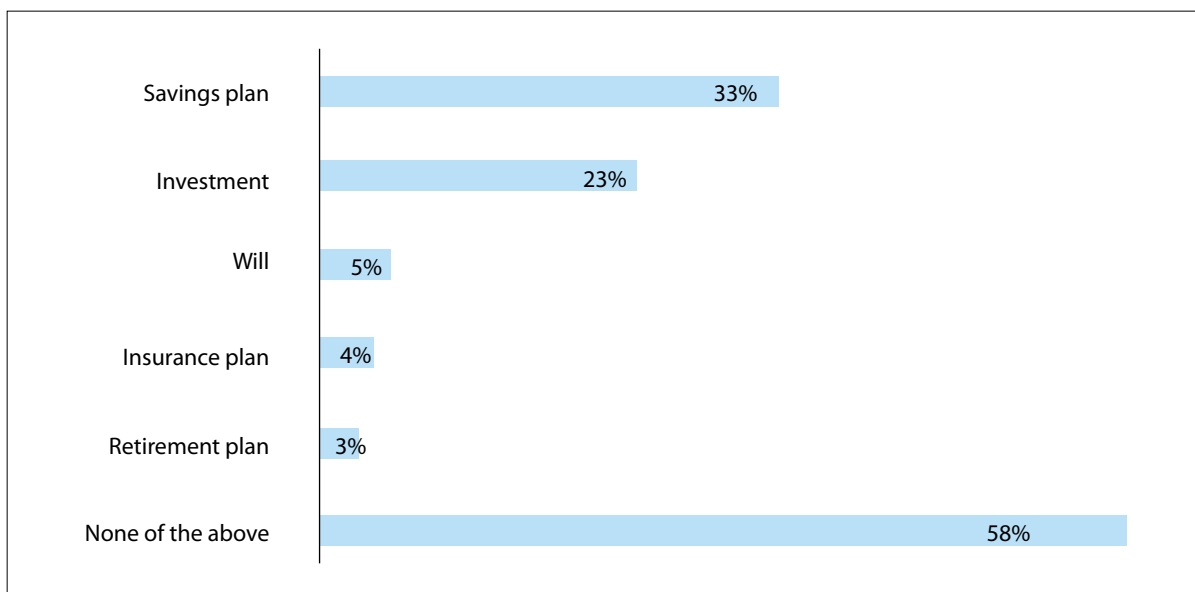
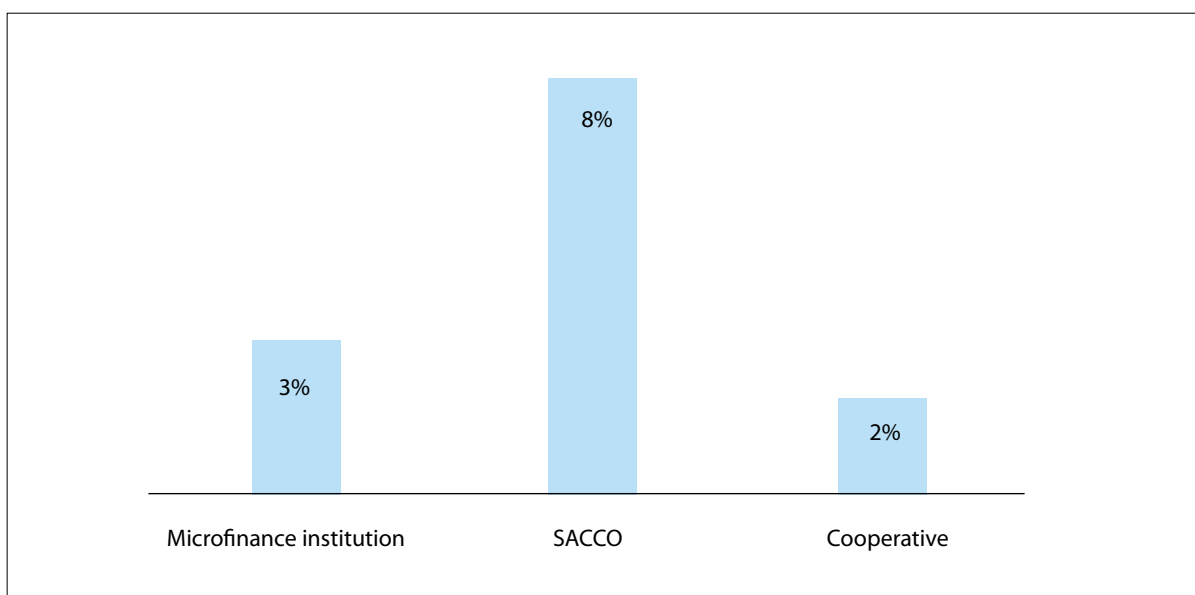
Figure 14. “Do you have any of the following?”**Figure 15. “Have you ever used any of the following?”**

Figure 16. “Have you ever heard of something called mobile money?”

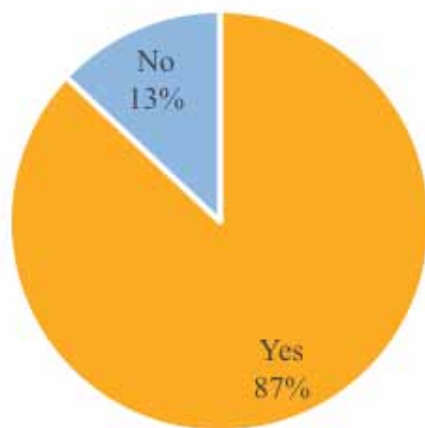
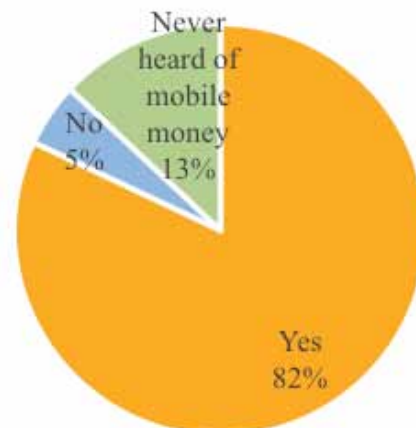


Figure 17. “Are there benefits to having a mobile money account?”



Access to mobile phones required to facilitate uptake of digital financial services.

In 2014, Uganda’s total population was approximately 37 million people, with roughly 19 million mobile subscribers. Mobile internet was less common, with an estimated 6 million mobile internet subscribers.⁵

Against this backdrop, smallholder farmers are even less digitally connected than the general population and the use of smart phones in Uganda remains quite limited. Though a majority of smallholder farmers have used a basic phone, smartphone usage is only in the single digits (4 percent). The majority of smallholders owned basic phones, though a significant portion owned a feature phone⁶.

While this is a barrier, there is some perceived relevance of using mobile phones for financial transactions, which suggests

a potential opportunity and openness to using the service.

Smallholder households considered mobile phones an important tool, but their ownership and usage remained somewhat limited. This constrains the usage of mobile money, which is optimized when consumers have regular access to a phone. Almost a quarter of smallholder farmers in Uganda had never used a mobile phone and approximately a third did not own their own (32 percent). Among those who are not using a phone, there was keen interest to start doing so: When asked if they would be interested in using a mobile phone, almost half replied that they were “very interested” (48 percent). Only small percentages consider them “not important” to the household or its agricultural activities (4 percent and 7 percent, respectively).

⁵ <http://www.ucc.co.ug/>

⁶ A feature phone is a mobile phone that can access the internet and run its own basic programs, but it is not capable of handling apps (specifically those made by third parties) like a smart phone.

Figure 18. “How interested would you be in using a mobile phone?”

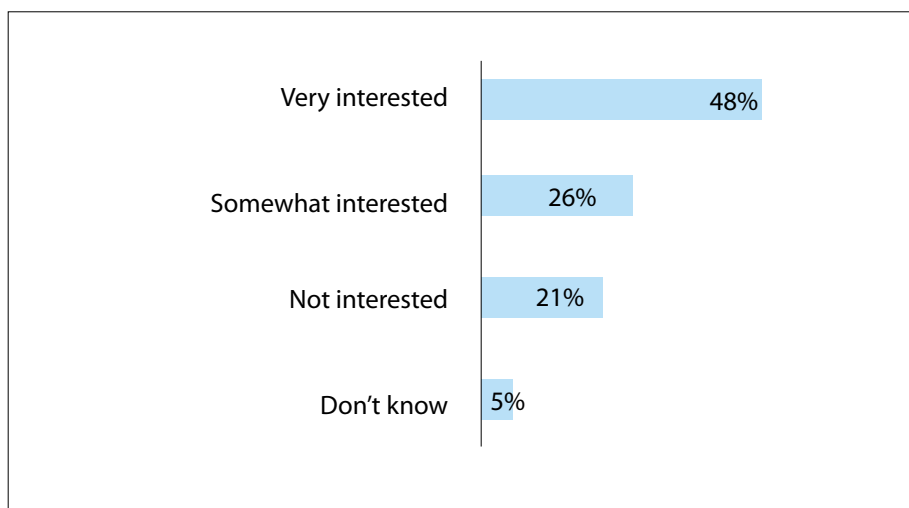


Figure 19. “Have you ever used a mobile phone?”

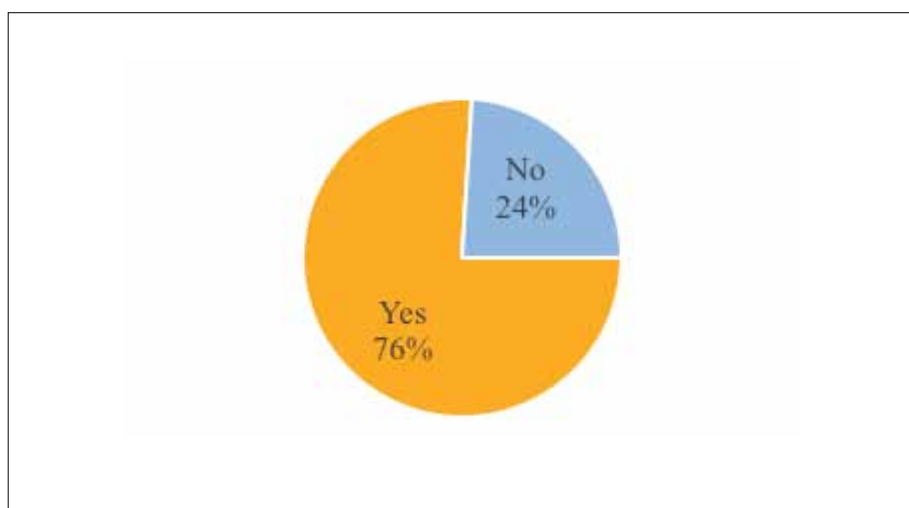


Figure 20. Report importance of mobile phones

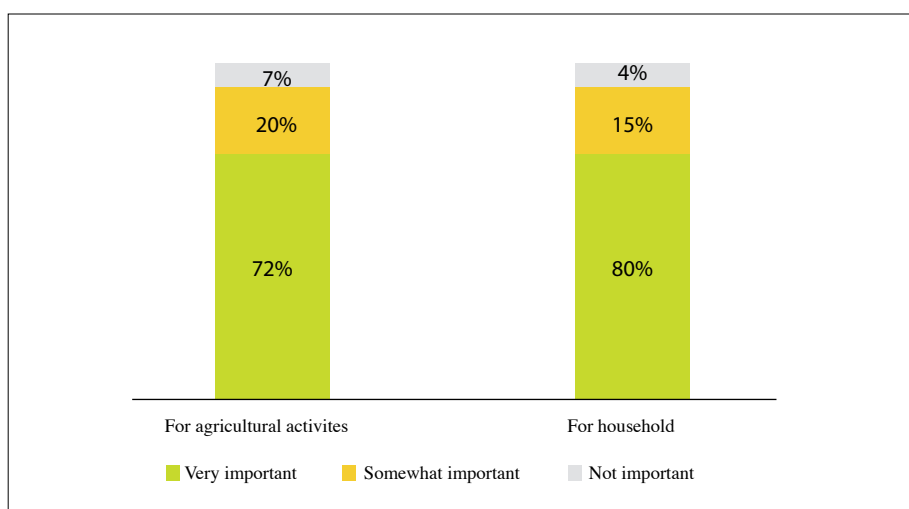


Table: 2. “What are the benefits to having your own mobile phone or SIM card?”

Talking to friends and family	75%
Conducting financial transactions	22%
Running your business	21%
Downloading / Watching / Listening to music, games, videos, ringtones	3%
Browsing social media (Facebook, Twitter, Instagram, WhatsApp)	2%
Other	2%
Don't know	0%
Never used a mobile phone	24%

What motivates the behavior of smallholder households?

Deciphering what lies within the gap between aspirations and practices is a central component of the upcoming in-depth analysis of smallholder households in Uganda. This initial look at this very recent data suggests that there is demand for a range of financial tools, including mobile money, and that barriers such as access, awareness, comprehension, and even comfort could be the interfering elements for a smallholder farmer in using these financial products, including those using digital means (e-money).

Section 4: Next steps

Informed by the high-level (broad-overview) observations in this overview, the full analysis will look deep within the smallholder population for the meaningful fault lines that define consumer segments. It will diagnose the various gaps between perceived importance and need, aspirational and actual, pairing them with avenues of opportunity for closing the gap.

Most importantly, the data will suggest a course of action for financial services providers, mobile network operators, funders, researchers, and other stakeholders working to expand financial inclusion among smallholder households in Uganda.

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2.5 PRE-SELLING OF COFFEE BY GROWERS¹



Section 1: Introduction

Uganda is located in the world's 'Coffee Belt' and was recorded as the 9th largest coffee exporter in 2014². Indeed, coffee is the most important cash crop of Uganda. The Ugandan coffee industry is almost entirely based on the production activities of about 500,000 smallholder farmers, 90 percent of whose farm sizes range between 0.5 to 2.5 hectares. They usually intercrop with food crops, such as bananas or beans, to ensure household food security³.

According to the African Coffee Academy, over 50 percent of coffee farmers in Uganda sell their coffee to intermediaries⁴. These are usually known as 'middlemen'. They buy farmers' coffee, mostly for immediate cash at the farm-gate.

Background: Coffee in Uganda

- There are two types of coffee produced in Uganda, Robusta and Arabica. Robusta contributes to about 80% of total Ugandan coffee production (UCDA, 2012).
- Coffee is a seasonal crop with harvest taking place during two seasons, the timing of which varies among the different regions of Uganda; a 'main season' and a shorter 'fly crop season'.

¹Author: Anika Schmidt, GIZ/AGRUFIN (anika.schmidt@giz.de). The article is based on research led by Oliver Schmidt, Dean: School of Business and Management Studies, Mountains of the Moon University, Fort Portal. Unless otherwise stated, this research is the source of data presented in figures, tables and text in this article.

²ICO (2015)

³UCDA (2012)

⁴Mwesigwa (2014)

Often middlemen offer loans to farmers whose coffee is still pre-mature, which farmers later repay with all or parts of their harvest.

This behaviour is known as pre-selling. The prices that farmers receive when pre-selling are usually far below the actual market value of mature coffee, making the informal financial services provided by middlemen a costly way of obtaining immediate cash, as the cost in terms of lower returns to the grower is equivalent to a **monthly** interest rate of between 73 and 139 percent (see Section 3).

This article discusses the reasons, consequences, and possible alternatives to pre-selling for coffee-farmers in Uganda, based on the study 'Pre-selling coffee at the farm gate' of July 2014, which was conducted with 300 coffee farmers from the districts of Mityana, Mubende and Kasese⁵. The study formed part of a development partnership project under the develoPPP.de Programme on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the German corporate software provider SAP. Within that

project, GIZ Uganda's Agricultural and Rural Finance (AGRUFIN) Programme and SAP, together with the Uganda Coffee Farmers Alliance (UCFA), developed an IT solution that, through a smartphone application, provides functions for supply chain management, monitoring, and evaluation⁶. The application captures information on individual coffee farmers, deliveries, and all transactions from the individual farmer to the coffee exporting company. As explained by Chhatwal and Mugoya (2014), it can thus help farmers to overcome one of the major challenges when trying to access financial products. This challenge is a lack of reliable documentation and information for loan assessments. This currently forces farmers to cover financing gaps by pre-selling their coffee to middlemen.

However, in order to use the information generated through the IT system as an income history and track record to increase farmers' access to financial services, lessons learned in this project highlighted the need for a better understanding of the reasons, dynamics and costs of pre-selling as an informal financial service provided by middlemen.

⁵ See the Annex for further details of those involved in the study – as well as data on the sample.

⁶ A detailed description of the project is provided by Chhatwal and Mugoya (2014).

Section 2: Why do farmers pre-sell? How widespread is the practice?

Of the sample used for this study, 172 out of 300 farmers engaged in pre-selling. During the last main season,⁷ pre-selling farmers sold on average 87 percent⁸ of their total coffee produce to middlemen before the coffee reached maturity; 76 percent of them pre-sold all while 85 percent pre-sold more than half of their total produce.

To better understand the motives for pre-selling, farmers were asked why they were selling their coffee before maturity, as well as why they were selling their coffee to middlemen.⁹ The results show that middlemen, compared to alternative buyers such as farmers' cooperatives or processing companies, have the advantages of being close to the farmer and being always available to buy their coffee for immediate cash.

Many farmers mentioned that as soon as their coffee cherries approach maturity, middlemen would visit them directly at their farm and offer them cash, whereas other buyers were far away and their payments would be delayed. Out of the 172 pre-selling farmers, 44 even said that

there was no alternative buyer available to them. Many farmers appreciate the flexibility of middlemen, for example regarding the time of buying/selling, the price, and the quality of the coffee which they are willing to accept.¹⁰ Finally, some farmers have a family/friendly relationship with a middleman and mentioned this as the reason for selling to them (see Figure 1).

The most common reasons for farmers to pre-sell their coffee are cash needs for school and medical expenses, as well as basic household needs in the absence of alternative income sources. Sixteen farmers also said that they pre-sold to pay back outstanding loans from other sources. Only 9 out of 172 pre-selling farmers used the money from pre-selling for investing in agricultural inputs or other income-generating activities, and only 10 farmers pre-sold because of unexpected events, such as funerals (see Figure 2).

It is thus likely, that many farmers do not try to minimize the amount of coffee which they pre-sell, but have adopted pre-selling as their standard practice, through which they sell the total amount of their produce.

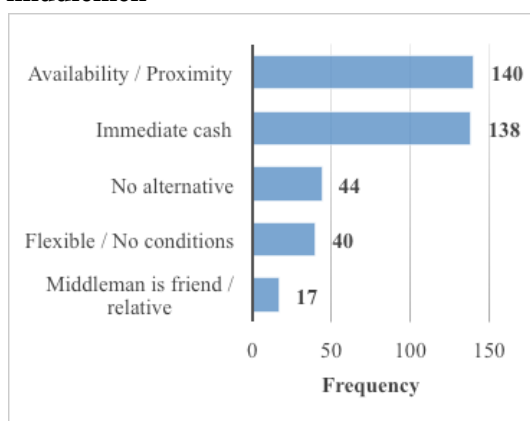
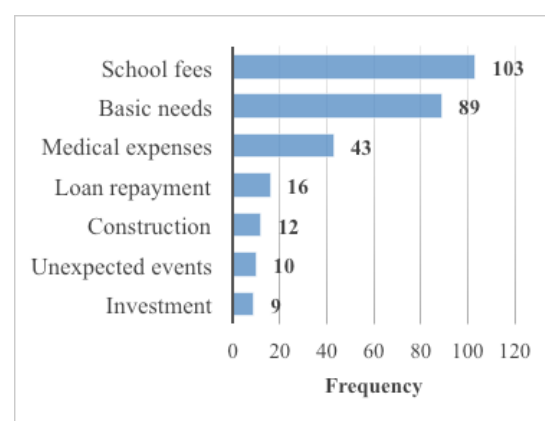
⁷The coffee seasons vary among the different regions. The data refers to farmers' last main season at the time the study was conducted (July 2014).

⁸These data are only available for the 210 Robusta farmers included in the study.

⁹These questions were asked as open questions, i.e. no pre-set answer choices were provided. If a farmer did not mention a certain aspect, this may be because it does not apply, or because he did not recall that aspect when interviewed.

¹⁰It was mentioned that middlemen would also buy coffee that is not completely dry, or coffee that would not be accepted by other buyers because of its low quality.

Editor's Note: Middlemen also purchase unharvested, green cherries some time before they ripen to red. Indeed, the middleman 'owner' of the cherries may decide (most likely for cash flow reasons) to harvest them prior to proper ripening. This results in quality being adversely affected.

Figure 1: Farmers' reasons for selling to middlemen**Figure 2: Farmers' reasons for pre-selling**

Section 3: Farmers' problems and financial losses due to pre-selling

Immediate cost of pre-selling

The price that farmers pay for receiving immediate cash through pre-selling is high. The average price for dry, unprocessed Robusta coffee is almost three times higher than the average price paid by a pre-buying middleman, and more than four times higher for Arabica coffee¹¹.

Thus, by pre-selling, farmers lose on average between 65 and 78 percent of their possible income from coffee-sales (see Table 1). Considering that, on average, farmers pre-sold their coffee 2.5¹² months before maturity during the last main season, this cost would compare to a loan with **73 to 139 percent fixed monthly interest rate**. It should also be noted that the losses due to pre-selling are significantly higher for Arabica farmers than for Robusta farmers.

Table 1: Price differences between pre-mature selling and selling ripe cherries

Price per kilo (last main season)	Robusta	Arabica
Pre-Selling	UGX 611 (106)	UGX 1043 (68)
Unprocessed mature coffee	UGX 1725 (83)	UGX 4663 (67)
Difference (total)	UGX 1114	UGX 3620
Difference (%)	65%	78%
<i>(number of observations in parentheses)</i>		

Perceived problems and disadvantages of pre-selling

Most farmers are aware of receiving lower prices through pre-selling. However, direct financial loss is not the only challenge they face when engaging in this practice. Another problem relates to the responsibility of harvesting the coffee after it is pre-sold. In 56 percent (a total of 97) of the pre-selling cases, the buyer paid for the cost of labour for harvesting.

¹¹ The average prices for pre- and mature-sold coffee slightly vary by region. The averages presented here represent cross-region averages.

¹² 2.7 months for Robusta and 2.2 months for Arabica farmers

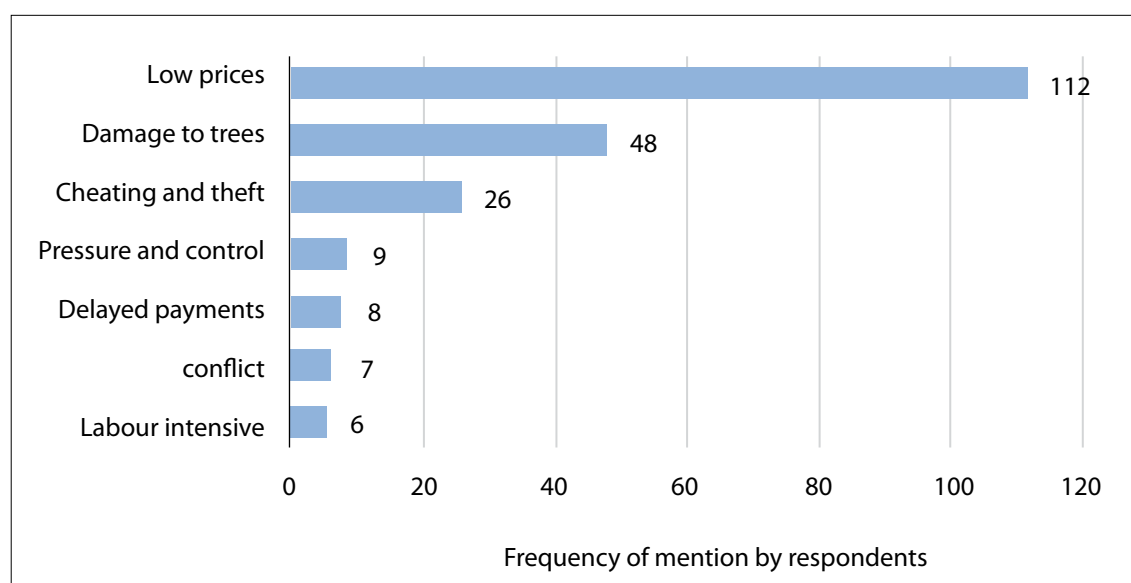
While this may seem to be the desired outcome for the farmer, there are significant disadvantages; 48 farmers stated that in such arrangements middlemen harvest the coffee carelessly at maturity, causing damage to the coffee trees, for example by breaking branches, which decreases the yield in the following seasons.

Related to the above issues, farmers also complained about problems of pressure and control, where middlemen did not allow farmers to enter their own gardens after pre-selling, until the coffee was harvested. On the other hand, farmers who, after pre-selling, were still responsible for the labour of harvesting, said that the labour-intensity was too high for the low prices they received, and that there was little motivation for harvesting, once they had received their money.

Another major challenge mentioned by farmers is cheating and theft. Even though in some cases, middlemen are friends, neighbours, or relatives of the farmers, the relationship between farmers and middlemen appears to pose major challenges. It was mentioned repeatedly that instead of 'officially' paying lower prices, middlemen cheated on the weight of the coffee.

Issues can also arise in case of disaster or disease outbreaks, after the coffee is pre-sold. Indeed, 42 percent of the pre-selling farmers stated that they would have to incur the resulting loss on their own¹³. In a few cases such situations, as well as the above mentioned issues, have let mistrust and tension come to dominate farmers' relationships with middlemen, and have led to conflict. Figure 3 gives an overview of farmers' perceived challenges of pre-selling.

Figure 3: Challenges of pre-selling to middlemen



¹³ Another 42 percent mentioned that the loss would be incurred by the buyer, and 16 percent mentioned that the loss would be shared or negotiated.

Section 4: Production and productivity

Farmers who engage in pre-selling have generally higher average yearly production amounts than farmers who do not pre-sell (see Table 2). Nevertheless, the average income obtained from coffee during the last main season is almost the same for pre-selling and not pre-selling farmers. This is likely due to the significantly lower prices which pre-selling farmers receive. However, among the pre-selling farmers, there is a moderate negative relationship¹⁴ between the production amount and the share of coffee which they pre-sell, indicating that pre-selling farmers with higher production amounts tend to pre-sell a smaller share of their produce than those with generally lower production amounts.

Table 2: Coffee production by pre-selling behaviour

Average Last Year Production	Robusta kg	Arabica kg
Pre-Selling	544	330
Not Pre-selling	364	271
Total	457	319

The yield of farmers' coffee trees ranges from below 0.16 to 4.7 kilos per tree for Robusta farmers and from 0.09 to 3 kilos per tree for Arabica growers. The averages of 1.53 kilos per tree for Robusta, and 1.1 kilos per tree for Arabica farmers for the sample (see Table 3) are far from the average potential of 2 to 4 kg per tree.¹⁵ However, there is no statistically significant correlation between the average productivity and the share of produce that was pre-sold by pre-selling farmers.¹⁶

Table 3: Productivity by pre-selling behaviour

Average Yield ¹⁷	Robusta kg per tree	Arabica kg per tree
Pre-Selling	1.56	1.13
Not Pre-selling	1.51	1.01
Total	1.53	1.10

Without further evidence, it is hard to interpret these findings, as a variety of factors can influence whether and which amounts a farmer decides to pre-sell or not. The observation that farmers with larger production amounts are more likely to pre-sell may simply be because their income is less diversified, whereas farmers with smaller coffee production amounts may have alternative sources of income. However, further evidence would be needed to probe such causal relationships. Above all, it is evident that there must be other factors that influence farmers' (pre-) selling decisions and behaviour.

¹⁴ Pearson's $r = -0.37$

¹⁵ Institute for Scientific Information on Coffee (2014)

¹⁶ Data only available for Robusta farmers.

¹⁷ Last main and fly seasons. Values above 6 kilos per tree were excluded from the analysis, as they are likely to be invalid.

Section 5: Pre-selling, organization membership, and farmers' financial behaviour

Pre-selling by organization membership

Farmer organizations provide a variety of services to farmers, including agricultural extension, access to superior inputs and/or harvesting facilities, the pooling of financial resources, lending to members, bargaining for fair coffee prices, and in some cases offering farmers an alternative sales channel for their coffee.

In fact, farmers who were members of any kind of farmer organization were significantly less likely to pre-sell their coffee than those who were not members of an organization. Some 49 percent of member-farmers engaged in pre-selling, compared to 67 percent of those who are not members in a farmer organization (see Table 4).

Table 4: Pre-selling behaviour by farmer organization membership

	Member		Non-Member	
Pre-Selling	59	49%	120	67%
Not Pre-Selling	61	51%	60	33%
Total	120	100%	180	100%

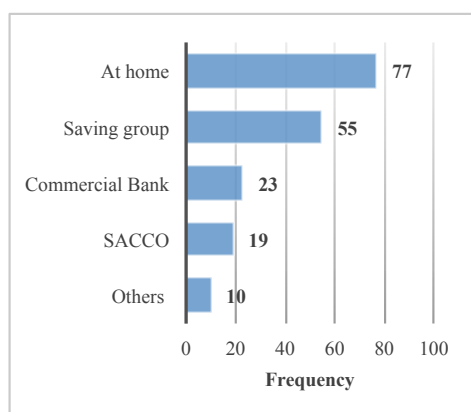
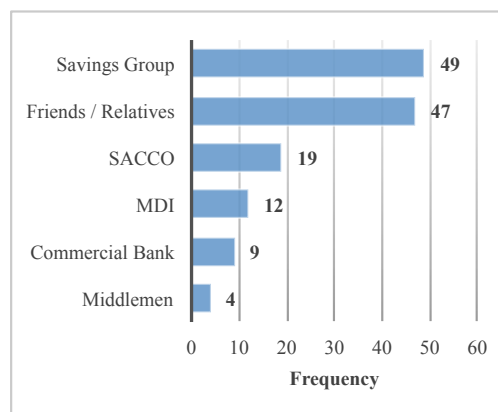
This could be a result of the services provided by the groups, but could also be a consequence of farmers' location, as farmers in more remote areas may be less likely to have access to farmers' organizations, but at the same time may be less likely to have alternative buyers for their coffee apart from middlemen. If the services of farmer organizations decrease farmers' likelihood of pre-selling, the outreach of farmer organizations should be further increased. At the same time, the effectiveness of their services should also be increased, as even among members, half of the farmers engage in pre-selling.

Pre-selling and financial behaviour

Smallholder farmers in Uganda are usually constrained by limited access to financial services. It is thus not surprising that the majority of farmers in the study make little use of formal financial services.¹⁸ The majority of farmers saved at home or in informal savings groups. Only 19 out of 177 farmers saved with a semi-formal, and 23 with a formal financial institution (see Figure 4). The majority of farmers with outstanding loans also obtained those from informal sources, with savings groups and friends/family being the most relevant providers of loans. Some 20 out of 138 farmers obtained their loans from semi-formal institutions (SACCOs)¹⁹, and 21 from formal financial institutions (commercial banks and MDIs) (see Figure 5).

¹⁸ 177 farmers provided information on their savings, and 138 farmers on their outstanding loans.

¹⁹ Savings and Credit Cooperatives

Figure 4: Farmer's modes of saving**Figure 5: Sources of farmers' loans**

The differences between the average savings and loan amounts of pre-selling and not pre-selling farmers are small (see Table 5). Farmers who do not pre-sell have on average slightly higher outstanding loan amounts. This may be a result of these farmers' higher use of other financial service providers for borrowing money.

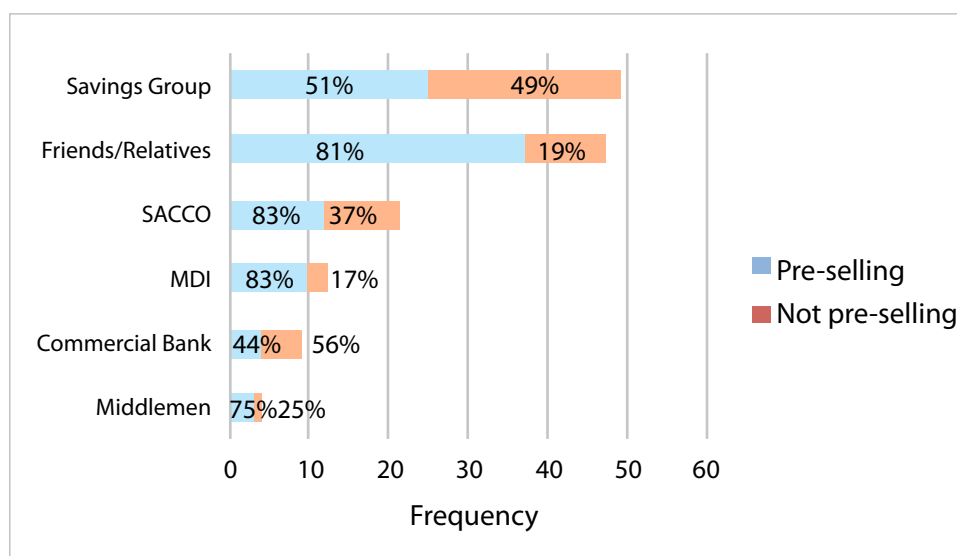
Table 5: Savings - and loan-amounts by pre-selling behaviour

	Average Savings	Average Outstanding Loans
Pre-Selling	UGX 144,320	UGX 316,750
Not Pre-Selling	UGX 139,853	UGX 349,957
Total	UGX 142,479	UGX 327,664

However, the pre-selling behaviour significantly varies between farmers who use different financial service providers for acquiring finance. Farmers who have acquired loans from commercial banks and saving groups are significantly less likely to pre-sell their coffee. Only 44 percent of farmers with loans from commercial banks, and 51 percent of farmers who have acquired their loan from saving groups have engaged in pre-selling, compared to 63 percent of those who have borrowed from SACCOs, and 81 percent of those who have borrowed from friends or family (see Figure 6). This may indicate that access to loans from saving groups and commercial banks could at least partly address farmers' financing needs and reduce their likelihood of pre-selling.²⁰

Increased access to financial services could thus provide a suitable solution to the problem of pre-selling, as long as the interest rates are lower than farmers' current immense loss due to pre-selling. However, adequate financial services also need to take farmers' motives for pre-selling into account. They have to be easily accessible, flexible, and provide for expenditures, such as school fees, medical care, and basic household needs – conditions that many formal financial products currently fail to meet.

²⁰ Further research is needed to provide evidence for a causal relationship between the two.

Figure 6: Farmers' pre-selling behaviour by sources of loan

Section 6: Possible alternatives to pre-selling and their challenges

Farmers in the study mainly mentioned four alternatives to pre-selling, three of them relating to income diversification. They include crop diversification, engaging in animal rearing, off-farm income through manual labour, trade, or service activities, and acquiring loans from other sources (see Table 6).

Table 6: Perceived alternatives to pre-selling and their constraints

Perceived Alternative	Constraints
Income diversification:	
a) Crop Diversification	1 Capital constraints / cost of capital
b) Animal Rearing	2 Alternatives do not provide the opportunity of pre-selling (no immediate cash)
c) Off-farm income	3 Land constraints
	4 No market
	5 Labour and time constraints
	6 Little expected income
	7 Lack of skills
Loans	8 High interest rates
	9 Lack of collateral
	10 Long/complicated acquisition process
	11 Lack of knowledge

The information provided by farmers indicates the existence of a vicious circle regarding the pre-selling of coffee. On the one hand, the perceived alternatives cannot be pursued because of the same financial shortages that encourage

farmers to pre-sell. On the other hand, many farmers mentioned that alternative sources of income could not compete with coffee, because they do not provide the opportunity to pre-sell, and thus to receive immediate cash at any time.

This thinking shows the value that farmers place on being able to obtain immediate cash, even though overall the practice makes them lose significant amounts of money. Their focus on the ability to obtain 'money now' does not allow them to plan in the medium to long term. Even if alternatives are there, farmers may forgo the opportunity to increase their overall income and financial well-being in order to remain able to receive 'quick cash'.

Another interesting finding from the table is that the major perceived constraint to acquiring loans as alternative to pre-selling are high interest rates. While the majority of farmers perceives the cost of capital as high, they engage in pre-selling arrangements in which they face costs of foregone earnings equivalent to loans with interest rates multiple times as high as those on the market, even considering relatively higher interest rates of locally available informal financial service providers. This likely shows that farmers do not calculate their losses and compare them to alternative ways of obtaining finance, which may or may not be available. Sensitization and training could thus be effective measures to create or strengthen farmers' awareness of the cost of pre-selling, and encourage them to embrace alternatives.

Section 7: Discussion and conclusion

One fact is very clear... **Farmers bear immense costs due to the practice of pre-selling coffee to middlemen.** Indeed, these costs are many times higher than interest rates for loans on the Ugandan market. Apart from the direct financial loss due to extremely low pre-selling prices, a number

of issues have been highlighted in this article that can negatively impact farmers' business. Farmers largely pre-sell because it allows them to receive cash immediately, but also because of convenience and a lack of alternatives, as middlemen are near, easily accessible, and always available. The immediate cash-needs of farmers mostly result from the obligation to pay for school fees, medical expenses, and basic household needs.

The study findings have a number of important implications.

Firstly, **access to financial service providers and products** is likely to significantly decrease the practice of pre-selling. However, a financial product that attempts to bridge the financial gap that farmers currently close by pre-selling has to be able to address farmers' immediate cash-needs. It has to be quickly available and tailored to farmers' conditions, such as limited financial knowledge and collateral, and their financial struggles and needs, such as paying for school fees, medical and household expenses.

Secondly, the findings suggest an urgent need of sensitization and training in the area of **financial literacy**, as many farmers do not seem to be aware of the actual costs of pre-selling, especially compared to the cost of loans. Such training could also attempt to improve farmers' ability to plan financially and to improve their savings behaviour, so that recurring expenses such as school fees do not lead to emergency-like cash-needs which increase farmers' willingness to obtain finance at any cost.

Thirdly, such sensitization should provide an **understanding of investment**, such that farmers look for income sources that provide most profit in the long run, rather than for those that provide immediate cash at a high price. This would also enable them to increase their spending on investment, rather than on consumption, especially if the money is borrowed.

While this article has highlighted some of the most prevailing issues of pre-selling in the Ugandan coffee sector based on a study conducted with 300 farmers in 3 districts, further research in the area is needed to provide a deeper understanding of the factors that determine farmers' pre-selling decisions on an individual level, especially with regard to causal relationships. Such an understanding could significantly help to develop tailored solutions to the problem.

However, with the lessons learned through the GIZ/SAP project mentioned in Section 1, and the evidence obtained through

the study results presented in this article, a follow-up project has already been launched in 2015. Through the project, GIZ's Agricultural and Rural Finance Programme together with FSDA, PostBank Uganda, and the coffee sector partners UCFA and Ugacof Ltd. attempt to address the financing gap which encourages farmers to pre-sell.

The project aims at increasing farmers' access to finance by providing them with a **targeted savings and loan product, using track records generated by the smartphone application** mentioned in Section 1²¹ to provide the bank with reliable information which it can use to adequately assess risks. **Financial literacy trainings** are an essential part of the project, to enable farmers to make informed decisions and use the available formal and informal financial products to their best advantage.

²¹ See Section 1 as well as Chhatwal and Mugoya (2014) for more information on the smartphone project.

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Annex: Description of the Study and Sample

This article presents the findings of the field study 'Pre-selling coffee at the farm gate' of July 2014. The study was financed through the develoPPP.de Programme on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ) as part of a development partnership project between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the German corporate software provider SAP. Implementation was led by GIZ's Agricultural and Rural Finance (AGRUFIN) Programme. GIZ is the implementation agency of the German Federal Ministry for Economic Cooperation and Development (BMZ). Research design, data collection, and data-entry were done by the School of Agriculture and Environmental Sciences (SAES) of Mountains of the Moon University (Fort Portal, Uganda). UCFA and Ugacof Ltd. helped to reach out and establish contact with the farmers that were included in the sample of the study.

The following table presents summary statistics of the sample used for the study: Summary statistics of the survey

District/Region	N	%	Cum. %
Kamuli	100	33%	33%
Kasese	100	33%	67%
Mityana	91	30%	97%
Mubende	9	3%	100%
Total	300	100%	
Coffee Type	N	%	Cum. %
Robusta	210	70%	70%
Arabica	90	30%	100%
Total	300	100%	
Number of Productive Coffee Trees	N	%	Cum. %
0-100	81	27%	27%
101-200	72	24%	51%
201-300	45	15%	66%
301-400	24	8%	74%
401-700	48	16%	90%
701-1000	18	6%	96%
>1000	12	4%	100%
Total	300	100%	
Production Amounts (Last 12 months)	N	%	Cum. %
0-100kg	34	11%	11%
101-200kg	80	27%	38%
201-300kg	53	18%	56%
301-400kg	38	13%	68%
401-500kg	32	11%	79%
501-800kg	32	11%	90%
>800kg	31	10%	100%
Total	300	100%	

N= Number of survey respondents

Cum = Cumulative



3

Value Chains and Contract Farming



3.1 CONTRACT FARMING IN THE UGANDAN SUGAR INDUSTRY¹

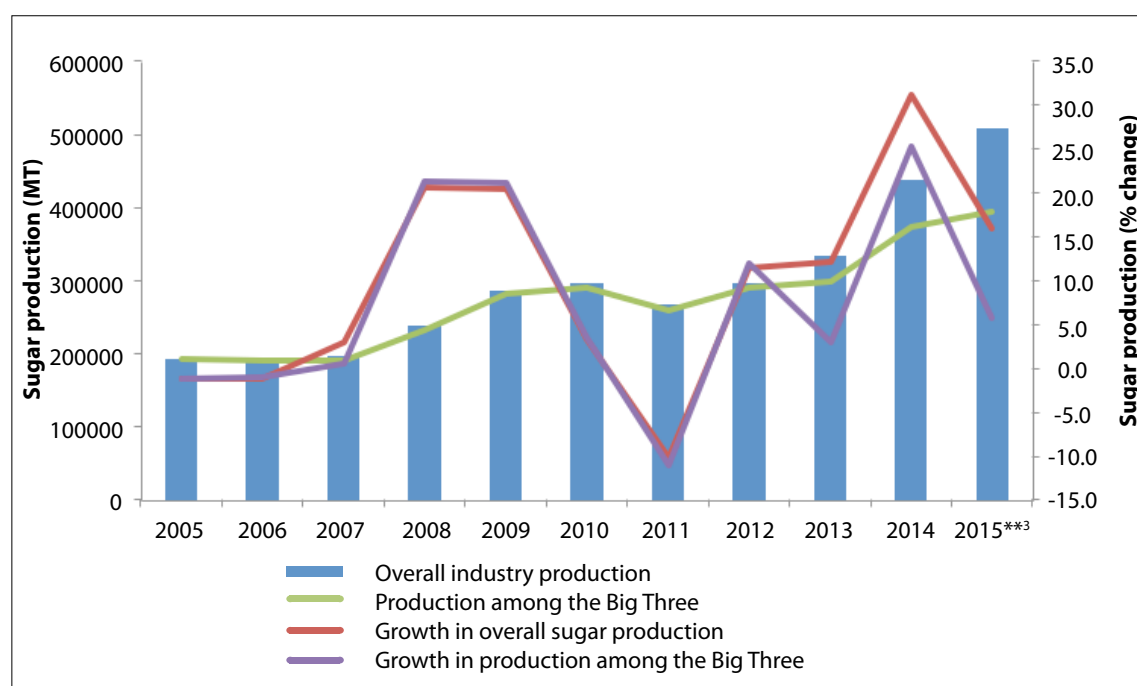
Section 1: Introduction

Overview of the sugar industry²

Up until 2006 sugar production in Uganda was in the hands of Kakira Sugar Ltd., Kinyara Sugar Ltd. and Sugar Corporation of Uganda Ltd. (big three) and Sango Bay Estates Ltd., producing 191,561 metric tons of sugar. As a result of increased capacity installation among the big three and the coming on board of six more factories

(Mayuge Sugar Industries Ltd., G. M. Sugar Ltd, Sugar & Allied Industries Ltd., Kamuli Sugar Ltd., Seven Star and Sezibwa) sugar production increased by 129 percent to 438,360 metric tons in 2014 when compared to 2006 production. Sugar production is expected to rise further to 508,500 metric tons in 2015.

Figure 1 : Developments in Uganda's Sugar Production



Source: Uganda Sugar Manufacturers Association

From Figure 1, much as new sugar factories have come on board, growth in sugar production is still largely driven by how much the big three produce. Indeed,

while the big three still dominate sugar production in Uganda, the coming on board of the six new factories has seen the share of the big three companies drop from

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² Acknowledgements: The author appreciates the discussions held with Dr. M. R. Reddy (Agriculture Manager Kakira Sugar Works), Mr. Omondong Robert (Outgrowers Manager Kakira Sugar works), Mr. Dhikusooka Patrick Mike (Senior General Manager Administration, Sugar Corporation of Uganda Ltd.), Mr. Ojwang David (Chairman Busoga Sugar Cane Growers Association, BSGA) and Mr. Ssajjabbi Nuhu (Manager BSGA). These authorities were most helpful in providing information used to write this document.

^{3**} The expected production and growth figures of sugar in the year 2015

97.5 percent in 2007 to 85.3 percent in 2014 and is expected to fall further to 77.7 percent in 2015.

The following section explores the structure of the industry. This will be followed by Section 3 which outlines the modality of the contract mechanism between outgrowers and sugar factories; Section 4 describes the available financial services, Section 5 highlights the net revenues that accrue to outgrowers and finally Section 6 notes the arising policy issues.

Section 2: Structure of the Industry

Production of sugar cane

Sugar cane requires fertile, deep and free draining soils, in lands characterised by a gentle gradient. Land preparation involves bush clearance, flattening of ant-hills and removal of tree stumps. This is followed by first and second ploughing. Ploughing is aimed at: breaking down hard compact sub-pan layer; incorporating previous crop residues and organic manures while at the same time destroying weeds; re-shaping the field as to give it an appropriate gradient to ensure easy drainage of excess water; and to break up clods. Second ploughing is followed by furrowing.

With regard to planting, clean seed from secondary seed cane (S2) nurseries with preferably growth of 12 months is usually recommended. The seedling is cut into setts⁴ of preferably 3 internodes. The setts are placed in an overlapping position in the middle of the furrow. Typically about 3 tonnes of seed cane is required per acre.

After planting the sett is covered with approximately 6 inches of soil. Weeding can be done using either herbicides or manual removal. Unlike many other perennial crops, sugar cane is a high feeder, necessitating fertiliser or manure application. It is advisable to apply the fertilisers at the time of planting, 6 to 8 weeks after planting and when full growth is attained, that is at 12 to 16 weeks. Manure may be applied before and after planting.

Harvesting and processing of sugar cane

Typically sugar cane is harvested at 20 and 18 months for Plant⁵ and Ratoon⁶ crops respectively⁷. At the respective maturities, sugar cane is said to have the optimal content of sugar, leading to high recovery. Otherwise, where there is a scarcity of sugar cane supply, harvesting can be undertaken at 18 and 16 months for Plant and Ratoon crops respectively. Harvesting involves ensuring that clean sugar cane is supplied to the factory. As such, the harvesting process involves cutting the sugar cane at the bottom to allow for regeneration. Equally, during the harvesting process, water shoots, long tops and trash must be removed. If adhered to, such a harvesting process not only delivers clean sugar cane but also sugar cane with a high recovery.⁸

Upon delivery to the factory, sugar cane is crushed so as to extract juice. Thereafter the evaporation process is undertaken to get rid of water. Chemicals are then added to improve the colour and then a separation process is executed to get crystalline sugar and molasses. Upon separation crystalline sugar is dried and packed ready for the market.

⁴ These are sugar cane stem cuttings for planting purposes.

⁵ Plant crop is the sugar cane from the first planting.

⁶ Ratoon crop is sugar cane that grows after harvesting the Plant crop. Ratoon 1 is after harvesting the Plant crop while Ratoon 2 is after harvesting Ratoon 1.

⁷ Outgrower farms yield 40 metric tons per acre

⁸ That is a high sugar content.

Land ownership

Typically factories, at least the big three, establish their own estates that can guarantee a consistent supply of sugar cane for the respective factories. The land is usually freehold and/or leasehold. For instance Kakira Sugar Ltd. owns a 10,000 hectare estate where sugar cane is grown.

However, given the installed capacities, at least among the big three companies, running optimally requires supply of sugar cane from outgrowers. Today, for instance, Kakira Sugar Works has 26,000 hectares of land run by sugar cane outgrowers in its catchment area. Equally, at Kinyara Sugar Ltd., outgrowers play a significant role with 60 percent of Kinyara's sugar cane supply coming from outgrowers. Typically, across the big three land ownership among outgrowers is mailo⁹, freehold, customary¹⁰ or kibanja¹¹ ownership.

The big three companies have consistently engaged in outgrower development programs. Such programs include establishment of demonstration farms with the objective of enlightening farmers about the scientifically optimal practices in sugar cane farming. Such practices include: preparing land for planting, weeding, fertiliser application and harvesting. Besides, outgrowers are equally advised on the sugar cane varieties that are disease and weather resistant. This is done through the factories selling sugar cane seedlings to outgrowers.

Equally the big three effectively offer credit facilities to outgrowers. For instance, Kakira Sugar Ltd undertakes to prepare land for planting, avail seedlings and planting. The farmer is expected to pay back at the time of harvest at a given interest rate. Furthermore, to enhance farm productivity Kakira Sugar Ltd also offers farm manure that can be bought by farmers either by cash or credit. The big three also engage in improving the road network so to ease access between the factory and outgrower-owned farms. The better the roads quicker it is to deliver sugar cane for processing.

Benefits of using outgrowers compared with own plantation production

While the development of outgrower schemes is essential for the big three to optimally utilise their installed factory capacities, there is an inherent risk of poaching by mushrooming (new) factories in their neighbourhoods. Indeed, in the recent past other sugar factories have poached outgrowers that the older companies took time and investment to nurture and contract.

Even then, much as the poaching risk is apparent, established factories such as Kakira Sugar Ltd., Sugar Corporation of Uganda Ltd., and Kinyara Sugar have no choice but to continue investing in outgrowers as it is the only way they can fully utilise their installed sugar cane processing capacities. There is no difference in costs between using outgrowers compared with company-managed sugar

⁹ This land tenure system is in Central Uganda following the 1900 Buganda Agreement which parcelled out land between the King of Buganda Kingdom, Chiefs of Buganda Kingdom and the colonial government. The basic unit of measurement in this system of land ownership is a square mile (equivalent to 640 acres) hence the word "mailo". Mailo land is registered land and provides security of tenancy.

¹⁰ Here land is owned and land transactions undertaken with the guidance of customary regulations.

¹¹ A Kibanja land ownership involves an individual who is not a registered land owner under mailo or freehold or customary land tenure systems. However, this individual can have rights to mailo, freehold and customary land through paying ground rent from a share of agriculture produce to mailo, freehold or customary land owners.

cane estates at Kakira Sugar Ltd. However, for the Sugar Corporation of Uganda Ltd. using outgrowers is relatively cheaper, due to lower overhead costs.

Section 3: Modality of the Contract Mechanism

Types of outgrowers and the nature of obligations

Outgrowers are of two types namely *aided* and *unaided*. Aided outgrowers are expected to write a letter of interest to join a company as an outgrower. The letter should highlight among others the amount of land that they own or can hire for sugar cane growing, its location and type of support the farmer wishes to receive from the factory. The farmer could seek for support in any of the following: ploughing, fertilisers, herbicides and seed cane. Upon receiving the letter, the factory sends a field assistant to the field where the farmer wishes to grow sugar cane to establish its suitability. Among others the field assistant will ascertain that the field is within a 25 kilometre radius of the factory, that the area of the field is at least 1.0 ha (2.47 acres) and that the land has a gentle gradient, with deep, fertile and free draining soils.

Upon establishing the suitability of the land for sugar cane growing, the field assistant enters the details of the evaluated field onto the electronic system. The system is accessed by the supervisors, Manager Outgrowers and Agriculture Manager. Evaluation will be done and, if successful, the farmer will be given a form to present to the Local Council Chairmen 1, 2, and 3 and the Sub-County Chief for their signatures. This is aimed at confirming that the land is actually owned by the farmer, or he/she has rights to use it. Upon returning the

signed forms, the farmer is issued with agreement forms for signing, if he accepts his obligations and those of the company. After returning the agreement forms, the company will sign and undertake to offer the services the farmer requested. For instance, if the farmer asked for ploughing, the company commits tractors to plough the field, on condition that trees and stumps are removed. If fertiliser is requested, the company would give the farmer the fertilisers or if it is seed cane, the company would deliver the seed cane to the field.

An unaided farmer is expected to write a letter that he/she has sugar cane and he/she is interested in supplying the sugar cane to the company. Thereafter a supervisor, in liaison with a field assistant, will visit the field to survey the land to establish its actual area and the age of the crop. When the crop is deemed good, the farmer is registered and an agreement is signed. Key to the agreement is that upon maturity the cane must be supplied to the company.

Note that upon registration an outgrower's details are used to create a code number. The code number is a unique identifier of a farmer, capturing among others that the farmer is an outgrower, *aided* or *unaided*, location of the field and the number of the field.

Irrespective of whether an outgrower is aided or unaided, they are bound to supply all the mature sugar cane to their respective company of registration. Typically, all the big three have an Outgrower Department which is managed by the Outgrower Manager. The Outgrower Manager is answerable to the Agriculture Manager who oversees the entire sugar cane value chain in both own nucleus estate and outgrower-owned sugar cane plantations.

Below the Outgrower Manager are a team of Supervisors who in liaison with Field Assistants oversee the process of selecting and advising outgrowers. While Supervisors have their offices at the factory premises, Field Assistants are based in the villages where sugar is grown. In the case of Kakira Sugar Ltd. there are 62 Field Assistants, 18 Supervisors, 2 deputy Outgrower Managers, one Outgrower Manager and one Agriculture Manager. Each of the portfolios has a role to play in ensuring that outgrowers' needs for extension advice and related services are efficiently handled.

Controls exerted by the factory

In terms of controls, Field Assistants are stationed in the villages to monitor the day-to-day activities of outgrowers. Besides, Supervisors have offices both at the factory and at the villages. The Field Assistants, in conjunction with Supervisors, will report any incidences of sugar cane diversion to the Superintendent in the Cane Diversion Unit at the factory. This Superintendent has standby trucks that are ready to pick up any sugar cane reported to have been illegally harvested. The Superintendent in the Cane Diversion unit works hand-in-hand with a legal advisor in the execution of his activities.

To control the quality of sugar cane supplied, permits to supply sugar cane are issued, based on the age of the sugar cane. Where there is evidence of diversion of sugar cane, poor quality harvesting or unsatisfactory management of sugar cane fields, warning letters are usually issued to the outgrowers concerned.

Gender dimension in production contracts

There are no gender considerations in issuing sugar cane production contracts to outgrowers. What is important is that an individual has land which is suitable for sugar cane growing. In fact there are incidences where both husband and wife are registered outgrowers with each party managing their own sugar cane plantations. Besides when one of the partners dies, typically the surviving partner takes over from the deceased partner.

Grouping of outgrowers

Groups such as Busoga Sugar Cane Growers Association (BSGA), Lugazi Sugar Cane Outgrowers Association, Kaliro Sugar Cane Outgrowers Association and Masindi Sugar Cane Outgrowers Association exist to lobby for the interests of farmers. Most important though is the role of these associations in negotiating for better prices of sugar cane supplied to factories, as sugar cane growing, harvesting and transportation costs fluctuate. Equally these organisations highlight any arising problems that outgrowers face, with the intention of soliciting support from the sugar company concerned.

Decisions regarding variety grown, quality and timing of harvest

Varieties grown are decided by the factory, especially for aided farmers. The varieties recommended are usually characterised by: pest and disease resistance, high sugar content, high yield, and hardiness. Typically the agronomy department, at least in Kakira Sugar Ltd., engages in the selection of varieties and tests them for the suitability of conditions in Busoga region.

Before a harvesting permit is issued, samples from a field are collected and taken to the agronomy department so as to establish that the sugar cane is of a quality worth being harvested. A permit will be issued only if the sugar cane is mature. Also, in terms of quality of sugar cane, it is especially important at the time of harvesting that the 'Kill to Mill' time is less than 48 hours. The more time cut cane lies in the field, the lower the sugar content. Also at the time of harvesting farmers are advised to eliminate immature sugar cane and binding matter. Inspectors at the factory sample to check the quality of sugar cane, before the delivery truck is allowed to weigh its load.

Section 4: Financial Services

Across all the big three companies outgrowers are able to access credit in the form of the provision of services for the growing, harvesting and delivering sugar cane to the factories. Equally, each of the companies has a loan recovery mechanism that operates when outgrowers deliver cane to the respective factories. For instance, Kakira Sugar Ltd. recovers any credit facility extended to outgrowers in three instalments. That is, 40 percent of the principal and interest (18 percent per annum) is recovered from plant crop, 30 percent of the principal and interest is recovered from the first ratoon crop and finally another 30 percent of the principal and interest is recovered from the second ratoon crop. This mechanism of making payments to farmers ensures that at each and every harvest a farmer retains at least 60, 70, and 70 percent of the plant, ratoon 1 and ratoon 2 crops respectively.

At the Sugar Corporation of Uganda Ltd. however, the company recovers its costs in two crop cycles, that is, 50 percent per ratoon crop. In essence, these procedures ease the burden of debt servicing.

In Kakira, there are two commercial banks; Stanbic Bank and Tropical Bank. Farmers are expected to open accounts at either bank. All payments from Kakira Sugar Ltd. to the farmer are channelled through the bank where the farmer has an account.

Equally, based on the farmer's acreage and therefore expected yield, the banks extend loans to the farmers at market rates. At the time of harvest, the bank simply deducts the amount of the loan payable by the farmer. Otherwise, companies such as Kamuli and GM pay cash on delivery, while Mayuge Sugar Industries Ltd. pays within 24 hours of delivery, in the farmer's bank of choice. Sugar & Allied Industries Ltd. pays either by cash at the factory or through Tropical Bank; however, there are incidences of delays in processing payments.

Section 5: Dynamics in outgrower sugar cane supply and cane prices for a typical sugar processing factory

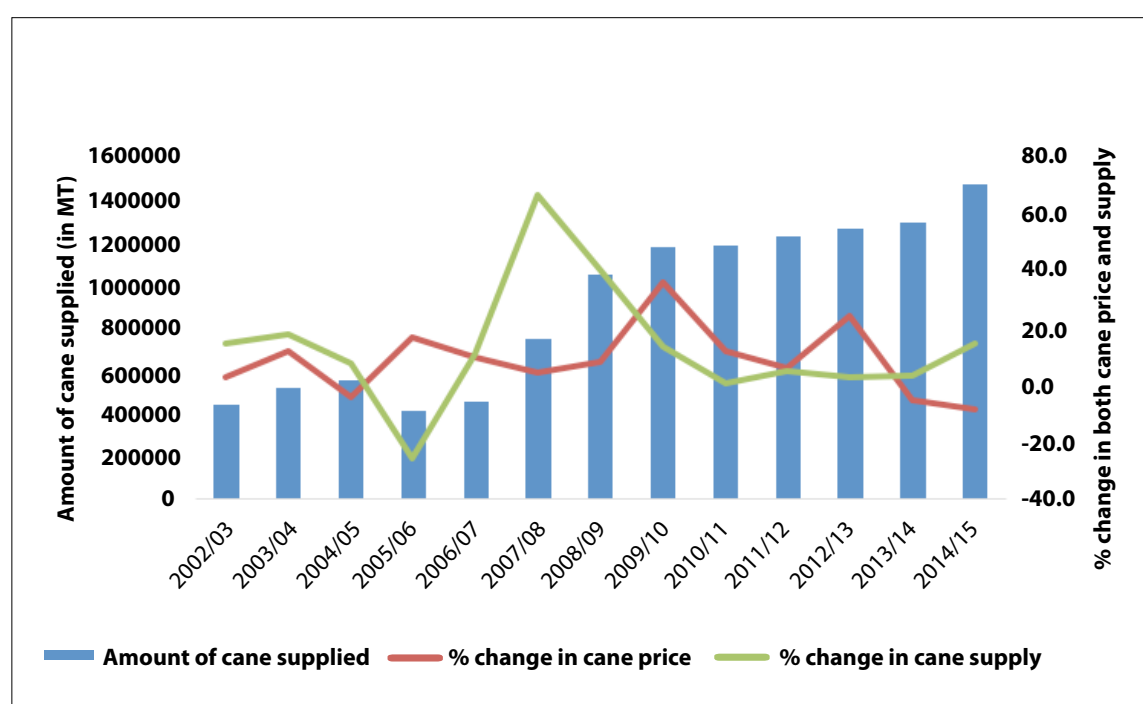
From Figure 2, there is evidence of a positive trend in out grower cane supply. Over the period 2002/03 to 2014/15, cane supply growth averaged 13 percent. Similarly, the price of cane per MT has a positive trend (see Figure 3). The growth in the cane price averaged 8 percent over the period 2002/03 to 2014/15. The rise in the price of cane has however been compromised by inflation such that over the same period the real growth in prices averaged -0.3 percent.

In real terms therefore, farmers have hardly experienced a positive growth in prices. This implies that inflation which manifests through higher costs of producing and delivering cane to the factory eats away at the potential revenue and profit increases from the rise in cane prices.

The estimated average cost of growing and delivering a MT of **plant crop** cane to the

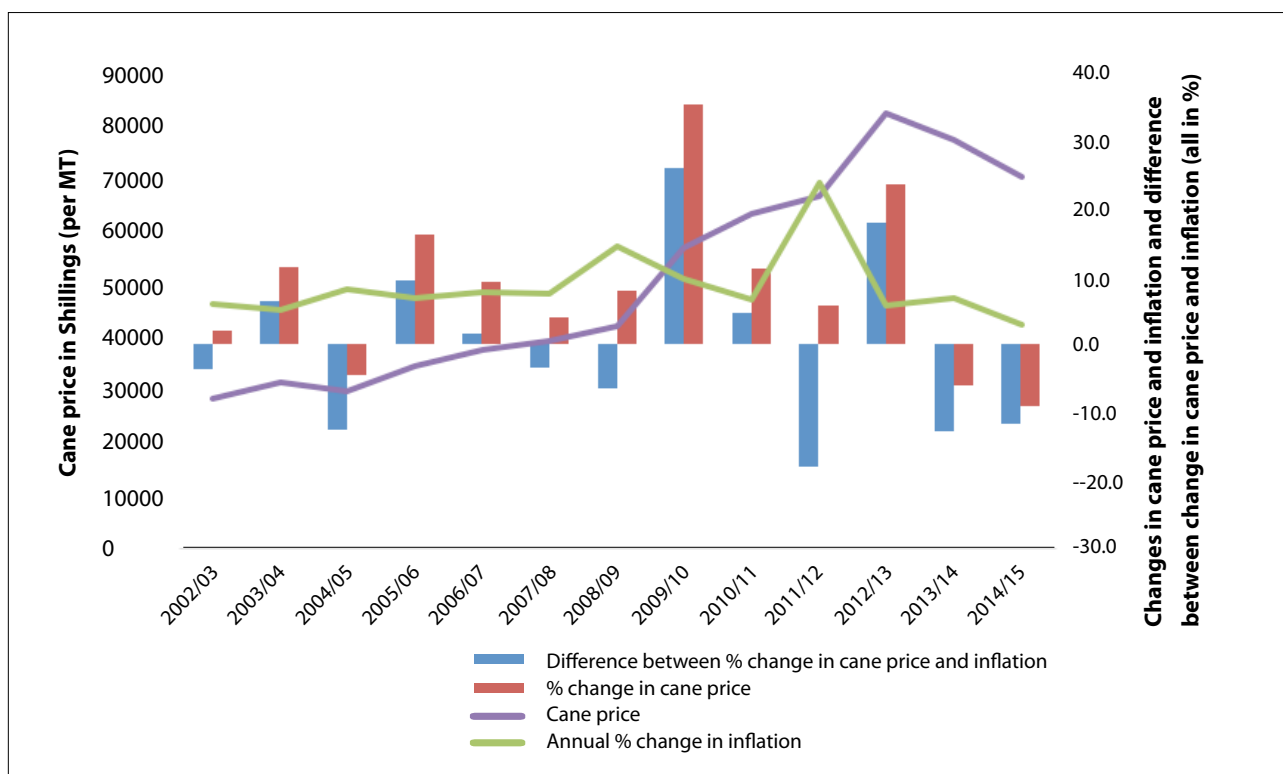
mill without fertiliser application is UGX 87,013; the cost with fertilizer is UGX 79,442. At the mill price of UGX 73,000 per MT this implies that, on average, outgrowers using fertilisers incur an estimated loss of UGX 6,442 per MT while those not using fertilizer have an average loss of UGX 14,013 per MT.¹²

Figure 2 : Developments in sugar cane supply by outgrowers; the case of Kakira Sugar Ltd.

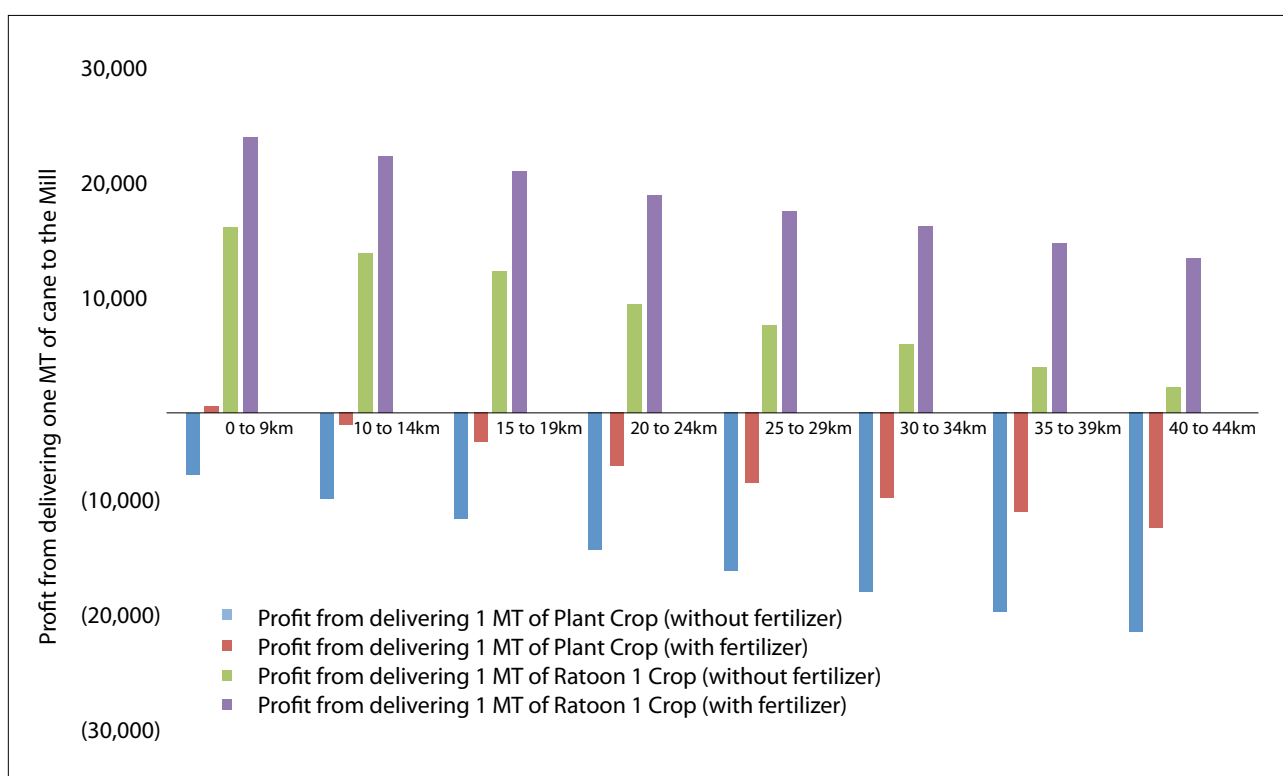


Source: BSGA

¹² **Editor's Note:** The cost per MT with fertilizer use is lower as the yield of cane in MT is higher, so cultivation costs etc. are spread over a greater volume of harvested cane.

Figure 3: Dynamics in outgrower sugar cane prices; the case of Kakira Sugar Ltd.

Source: BSGA and Bank of Uganda

Figure 4: Estimated profit from delivering one Metric Ton of cane to mill given the distance (in kilometres) from the mill

Source: BSGA

From Figure 4, it is evident that, other than outgrowers growing cane at most 9 kilometres from the factory and engage in fertiliser application, other outgrowers, on average, are estimated to be making losses, at least for the **plant crop**.¹³

For the **ratoon crop 1** however, given a price of 73,000 Uganda Shillings per MT, outgrowers on average make an estimated profit of UGX 19,731 per MT when using fertilisers and UGX 9,938 when no fertilizer is applied.

From Figure 4, it is evident that the profit is increasing with decreasing distance between the mill and outgrower farm location, irrespective of whether an outgrower is using fertilisers or not.

Note however that 97 percent of outgrowers do not use fertilisers and as such do not benefit from the potential higher return associated with fertiliser application. Even so, outgrowers are aware of the negative (low) profit associated with the plant (ratoon) crop.

The outgrowers perceive the low returns to be partly attributable to outgrowers implicitly paying taxes on sugar.¹⁴ By considering the net sugar price in the price determination of outgrower cane price per MT, in principle it's a price after the factory has paid off taxes. Given the formula used in outgrower cane price determination outgrowers' perception is that they are, in principle, partly carrying the factory's tax burden.

Also outgrowers have a perception that they are not receiving a fair share of the sugar price. A MT of sugar cane yields 90 kg of sugar. Ninety kg of sugar goes for UGX 201,600 at the mill. Compared to the UGX 73,000 cane price per MT, outgrowers claim only 36 percent of the UGX 201,600 sugar price. Furthermore, outgrowers perceive the cane price at the mill not to be fairly priced given that the factory also 'earns' from electricity production¹⁵ and molasses,¹⁶ both by-products in the production of sugar.

Even then, outgrowers continue growing cane because of: 1) relative price stability compared to crops such as maize; 2) secure lump sum payment upon harvesting and delivering to the factory; 3) inability to keep books of accounts, hence ignorance about the specifics of benefit/cost in growing sugar cane as an outgrower.¹⁷

Section 6: Policy Implications

The inability for government to control the number of sugar factories in a given radius has compromised the maturity of sugar cane harvested and therefore quality of sugar cane supplied and incomes of outgrowers. It also interferes with the bank advance procedures, since when the contracting factory issues a guarantee to the bank it depends on delivery of sugar from the borrowing farmer. When cane is diverted to another factory, both the contracting factory and the bank lose out.

¹³ Editor's Note: The reader will appreciate that the averages presented here actually mean that some growers will be doing somewhat better than the loss positions presented i.e. making a profit, with the plant crop, while others will be suffering greater losses than the averages. The same applies to ratoon crops.

¹⁴ Sugar cane price = Weighted Average Ex-factory net of sugar price for the season*recovery*40%

¹⁵ Outgrowers are charged a 5% deduction as trash upon delivery of cane to the factory. This trash contributes to bagasse which generates electricity at the bagasse-fired thermal power plant.

¹⁶ At least one factory has set up a plant to produce ethanol, which is another by-product of sugar production.

¹⁷ Editor's Note: One supposes too that outgrowers may benefit if they interplant vegetables and other crops with the cane. Since all the costs of land preparation are borne by the sugar crop, this may well be a significant positive driver for participation as a sugar outgrower.

Also, by factories being close to each other, this inevitably induces a high demand for sugar cane resulting in price increases. The higher prices tend to incentivise households to substitute sugar cane for food crops. Since sugar cane takes at least 16 months to mature there is an inherent risk of food insecurity. Food insecurity increases the likelihood of household food poverty and its associated outcomes such as malnutrition among both adults and children.

One of the ways to potentially eliminate the poaching behaviour (and its associated negative externalities) of some sugar

factories would be for the licensing authority (Ministry of Trade and Industry) to reconsider how it issues licenses to prospective factories.

The Ministry should stick to the sugar factory zoning policy which requires that a new factory cannot be established within a radius of 25 kilometres from an already existing factory.



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3.2 VALUE CHAIN FINANCING IN THE IRISH POTATO INDUSTRY¹



Section 1: Structure of Potato Industry

Irish potato is an important crop for food and income generation in Uganda (NAADS, 2004). The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) in its non-ATAAS component of the Development Strategy and Investment Plan (DSIP) 2010/11-2014/15, recognises potato as one of the strategic commodities, with the potential to remarkably contribute to increasing rural incomes and livelihoods, and improving food and nutrition security (MAAIF, 2010 & MAAIF, 2012).

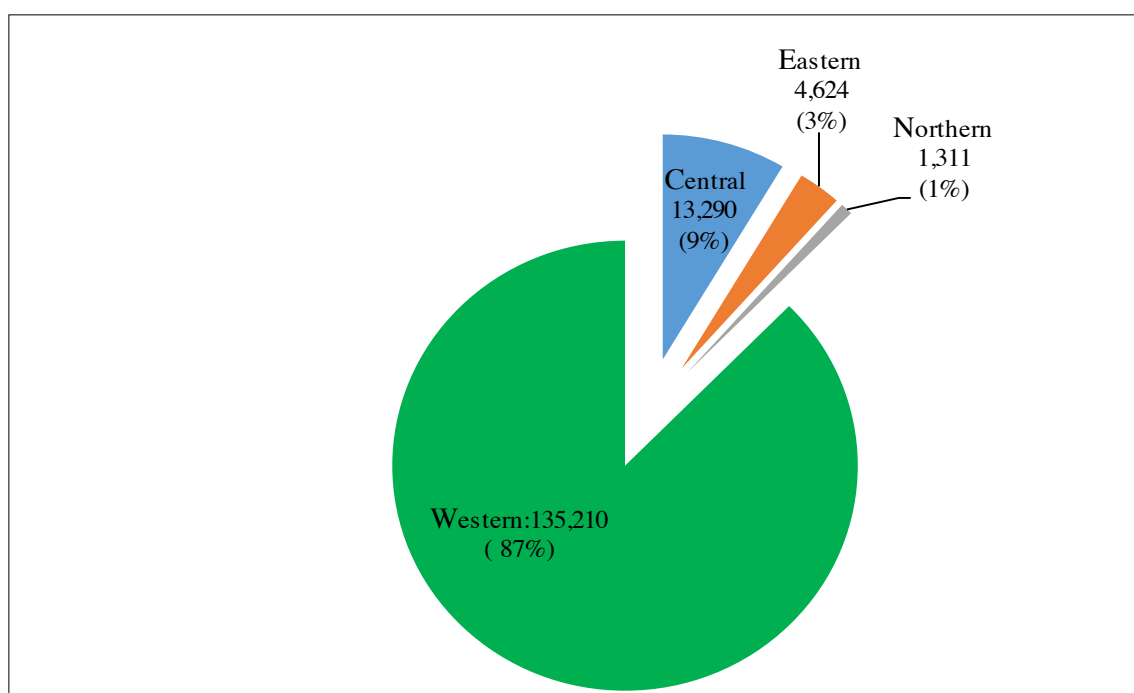
The Uganda Census of Agriculture (UCA) 2008/09 found that more than 87 percent of potato production in the country comes from Western Region (UBOS, 2014; Figure1). Within this region, more than 53 percent of potato comes from Kabale, Kisoro and Kanungu, and the same districts account for 47 percent of the potato produced in the country. Potato production in the region is mainly favoured by high altitude

(1500 – 3000 m) and its associated low temperatures, fertile volcanic soils, and normally abundant relief rainfall², which ranges between 900 and 1400 mm per annum (Ferris *et al.*, 2001).

Potato is produced on smallholdings and on a subsistence level. UCA (2008/09) found that 40 percent of produced potato in Uganda and in Western region is sold. Also, most farmers are smallholders, cultivating less than one hectare (Ferris *et al.*, 2001). The level of fertilizer application and use of improved seed is low. Farmers, therefore, maintain production by expanding the cultivated area. Indeed, the area under potato increased from 35,000 ha in 2009 to 39,000 ha in 2013. A typical potato farmer basically uses land, recycled seed and labour in the production. The most grown potato varieties are Rwangume, Kinigi, Rutuku and Victoria, and the least grown, yet highly demanded variety by processors,

¹ Authors: Mildred Barungi (mbarungi@eprcug.org) and Francis Mwesigye, (fmwesigye@eprcug.org) EPRC

² Editor's Note: "Relief rainfall" is due to air moving up over mountains, cooling and thus causing moisture in the air to condense into rainfall.

Figure 1: Potato production (tons) by region

Source: UBOS 2014 Statistical Abstract; Uganda Census of Agriculture 2008/09

is Kacport1³. Farmers decide on the variety to grow based on: demand and hence market availability; resistance to pests and diseases; sensitivity to soils and weather changes; yield in terms of potato size and numbers; maturity period; and taste.

Production inputs are supplied by small agro-input dealers in villages and a few wholesalers in large centres. There remains a challenge of fake chemical inputs. This issue highlights the poor implementation of regulations on standards and lack of monitoring of agro-input dealers. Potato seed is supplied by seed multipliers and markets that sell recycled seed. The supply of seed is less than demand. For instance, an Economic Policy Research Centre (EPRC) survey (report writing is in progress) found that there was no screen house in Kanungu; there were three in Kisoro but only one was operational, and very few in

Kabale. Irrigation is not applied in potato production because of the hilly topography and lack of better irrigation technologies; hence potato production remains rain-fed. One notes, however, that in many seasons the rainfall is satisfactory for this crop.

Women play an important role in potato production and their overall level of participation exceeds that of men. Women are involved in land tillage, planting, weeding, and harvesting but little has been done to enhance their participation. From the EPRC survey, farmers noted that there is a need to avail more suitable sources of finance, together with capacity building, so as to enhance gainful participation of women in potato farming. The challenges facing potato farmers include: high cost of and fake inputs; pests and diseases; poor market access; small land sizes and fragmentation of holdings; reliance on

³ Kacport1 is a new potato variety currently being tried on-farm by some farmers who belong to groups in Kisoro district. This variety has not yet been disseminated to the wider potato farming community.

rain fed production which makes farming susceptible to weather shocks, poor storage facilities, and lack of suitable sources of finance.

Section 2: Irish Potato Marketing and Processing

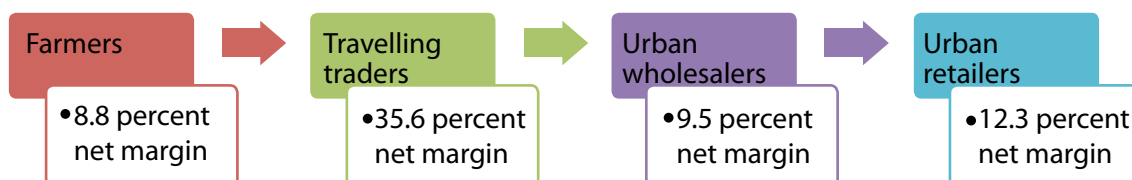
Markets for Uganda's potatoes are mainly domestic (Ferris *et al.*, 2001). The main buyers include: traders, processors, agents (middle men), and individual consumers. The EPRC survey found that in western Uganda traders account for 71 percent of total potatoes sold, while agents, individual consumers and processors share the remaining 29 percent. Group marketing is still weak as only 25 percent of farmers sell part of their produce in groups compared to 96 percent who sell individually, a reason for low bargaining power and hence low

prices. Potato prices vary by variety and remoteness.

The most preferred varieties fetch higher prices per bag⁴: Rutuku (UGX 107,850), Rwangume (UGX 100,700), Kinigi (UGX 98,200), and Victoria (UGX 84,500). Prices are higher in Kabale, the most accessible among the major potato growing districts in western Uganda, with the highest offered price per bag at UGX 140,000, higher than 105,000 and 117,300 for Kanungu and Kisoro respectively.

The marketing margins change as potatoes move through the marketing chain. Ferris *et al.* (2001) computed net margins along the potato value chain and observed that travelling traders⁵ earn the highest margins of over 35 percent and farmers earn the lowest, around 8.8 percent (Figure 2).

Figure 2: Net margins from sales as the potatoes move along the marketing chain



Source: Ferris *et al.* (2001)

The main potato processing products are chips and crisps. The value chain survey found that 87 percent of the processors produce chips while only 27 percent produce crisps. However, there was a mismatch between the produced potato and the one demanded for processing. As a

result, not all of the big processing plants are operating at full capacity. For example, the Kisoro Potato Processing Plant has not commenced full scale processing. The processing plants want potatoes without eyes and oval in shape, which most farmers are not currently producing.

⁴ 1 bag of potatoes weighs between 120 to 145 kilograms.

⁵ Travelling traders are traders who directly buy potatoes from farmers and rural traders, transport them and sell them to retail and wholesale traders in urban centres.

Much potato processing is still on a small scale and is labour intensive. The processing activities include: washing and peeling, sorting and grading, frying and packing. Women do most of the processing work. On the other hand, the involvement of women in potato marketing is limited compared to their male counterparts. Over 57 percent of potato marketing is done by men. The marketing constraints include price fluctuations, poor market access, inadequate market and lack of standard measurements, as potato is measured in bags and not kg when buying from farmers. Processing challenges include: inadequate financing to permit the acquisition of more efficient processing machines, lack of potatoes suitable for processing, coupled with inadequate total supply and hence high price of potato, especially in dry seasons.

Section 3: Investments in the Potato Industry

Investments in improved seed, fertilisers and herbicides have proved to be productive. In the value chain studies, where farmers were asked to rank investments in potato production according to the most effective in increasing yield, most farmers ranked investment in inorganic and organic fertilisers as the most effective, followed by improved seed, then by herbicides, which were ranked third.

At the marketing level, traders argued for community level storage facilities and collection centres which would improve post-harvest handling and reduce wastage. At the processing level, the construction of the potato processing plant in Kisoro has a great potential of enhancing potato

value addition and hence increasing price. There is however a challenge of a shortage of potatoes suitable for processing. The large scale potato processing plants have considerably better sources of finance than do the small-scale processors. For instance, capital costs for the Kisoro Potato processing plant were funded by a loan from Uganda Development Bank under the Agriculture Credit Facility, a grant from the Netherlands Private Sector Financing, while the Government of Uganda made a contribution on behalf of farmers through NAADS. The plant in Kisoro uses its own funds to finance the recurrent costs. The Government of Uganda also financially supports Uganda Industries Research Institute (UIRI) processing plant. For small-scale processing, on the other hand, individuals use personal savings and also borrow from informal saving schemes to finance both capital and recurrent costs.

Section 4: Financing Services in the Potato Industry

Access to affordable finance is still a challenge for potato producers and marketers. As a result, most farmers use personal savings and small loans from informal credit sources, and a small proportion uses formal funding. Indeed, the value chain study found that 86 percent of farmers use private savings; 70 percent use Village Savings and Loan Associations (VSLAs); 37 percent use SACCOs; 18 percent use private money lenders, while 17 and 15 percent use commercial banks and Micro Finance Institutions respectively. Generally, interest rates are high for the informal credit sources (VSLAs and private money lenders) but still farmers prefer them because of the ease and speed of accessing money (Table 1).

VSLAs have helped farmers adopt improved technologies like the use of improved seed and fertilizer application. Farmers noted that even though VSLAs charge higher interests, they have better repayment terms

that allow farmers to pay after harvest. Also, since farmers own shares in the VSLAs, in case they fail to pay the debt, associations just deduct from the shares and thus do not confiscate the collateral.

Table 1: Sources and costs of financing investments in the potato value chain

Source of financing	Percentage using source of financing			Monthly interest rate (percent)		
	Farmer groups* (n = 51)	Processors (n = 30)	Traders (n = 30)	Farmer groups* (n = 51)	Processors (n = 30)	Traders (n = 30)
Personal savings	86	100.0	100.0	N/A	N/A	N/A
SACCOs	37	6.7	13.0	3.3	4.0	9.8
Microfinance institutions	15		3.0	2.0		
Informal saving schemes	70	56.7	63.0	7.5	6.7	5.2
Commercial banks	17	10.0	20.0	5.8	2.3	2.5

Source: Authors' calculations using 2015 potato value chain survey data. *We did not capture data from individual farmers. However, we inquired from members of focus groups about the percentage of individual farmers in their respective communities who borrow from the available sources of financing.

Potato traders and small-scale processors also mainly obtain loans from VSLAs, but largely rely on personal savings to invest in their businesses. The major limitation of VSLAs is that the sizes of approved loans are usually smaller than what is required. For instance, for the case of processors, we found that the maximum amount of money ever borrowed from VSLAs was around UGX700,000 (Table 2). This finding is similar to the FINSCOPE III Survey 2013 findings which indicated that over 85 percent of borrowers received loans not exceeding one million shillings. Evidently, farmers have not exploited cheaper sources of financing that

lend sizeable loans, notably; MFIs, SACCOs and commercial banks (Table 2) because: a) they lack collateral (usually land); b) they fear losing to the creditors the property that is offered as collateral, and c) usually the payback period does not match the times of harvests (so sometimes it is difficult for farmers to pay promptly). Also, the formal finance sources such as commercial banks are concentrated in big centres and are hence hard to access by rural farmers. This, coupled with the long loan processes and collateral requirements, discourages farmers from using this cheaper funding source.

Table 2: Amounts of money (UGX) typically borrowed to finance potato related investments – based only on the EPRC sample

Source of loan	Processors		Traders	
	Minimum	Maximum	Minimum	Maximum
Informal Savings schemes	275,294	719,706	540,000	1,533,684
SACCOs	150,000	250,000	1,100,000	1,650,000
Commercial Banks	1,000,000	4,250,000	2,230,000	6,500,000
Microfinance institutions			400,000	400,000

Source: Authors' calculations using 2015 potato value chain survey data

Section 5: Policy Environment

In order for the potato value chain to fully function, Government of Uganda needs to have and implement policies that support increased on-farm production and improved land/labour productivities in the growing of potatoes. Government policies that are relevant to promoting Uganda's potato industry include: National Agricultural Policy, Land Policy, Seed Policy, Fertiliser Policy and Agriculture Extension Policy. Most of these policies have not completed the policy formulation cycle and even those that have completed the cycle remain ambiguous and unable to cause the desired growth in the potato sub-sector. Below are specific examples of the shortcomings of the policies.

The National Agriculture Policy, which aims at transforming agriculture from subsistence to more commercialized

farming, through increasing production and productivity, does not appropriately address some of the key challenges facing the sector: irrigation as a way of reducing reliance on natural weather; management of risks emanating from weather shocks; and agriculture financing⁶. According to the 2008/09 Uganda Census of Agriculture, only 0.9 percent of farmers apply irrigation and this affects the sector's performance. In addition, crop and/or weather index insurance is yet to overcome the challenges currently faced, including lack of a reliable network of weather recording stations (crucial for weather index insurance).⁷ Lastly, agricultural financing is still a major challenge, due to costs and risks. Moreover, collateral availability is limited, as more than 80 percent of the land in Uganda is not titled, and there are historic problems over loan repayment.

⁶ According to the Agricultural Sector Development Strategy and Investment Plan (DSIP) 2010/11 – 2014/15 (MAAIF, 2010) and the Second National Development Plan (NDP II) 2015/16 – 2019/20 (NPA, 2015), dependency on rain-fed agriculture, negative consequence of climate change and limited access to agricultural finance are among the key challenges facing the agriculture sector.

⁷ See Roberts R.A.J. "Weather risk insurance: Is Uganda ready for this type of product?" pp 179-185 in Uganda *Agricultural Finance Yearbook 2010* for a discussion of the necessary precursors for weather index insurance as a viable financial product in Uganda.

The Land Policy which aims at enhancing tenure security and ensuring sustainable land use has fallen short of curbing land conflicts and fragmentation which are escalating and are adversely affecting smallholder farmers in Uganda. For instance, there has been little progress on the formalization of land rights through titling and registration yet, as this study found, most formal credit sources require collateral. Therefore, lack of formal land rights impedes credit access.

The Fertiliser and Seed policies are yet to go through the complete policy formulation process. The Fertilizer Policy was adopted by MAAIF but is still awaiting Cabinet approval to have it adopted into the national budgetary plans for implementation. The Seed Policy on the other hand has been in the policy formulation process for the last 14 years. Lack of these two policies means that the government is not yet in a position to address the challenges facing the seed and fertilizer supply chains.

The extension system in Uganda has evolved over the years. A year ago (since June 2014), MAAIF adopted a publicly funded agriculture extension system that has been dubbed “single spine agricultural extension system”. The new system aims at harmonizing and coordinating all extension service delivery in the country to address the inefficiencies associated with its predecessors the National Agriculture Advisory Services (NAADS) together with the traditional public extension system. The harmonised and well-coordinated institutional framework of the single spine, particularly the elimination of the parallel extension systems that existed previously, is commendable. However, a number of concerns persist, especially the lack of a framework implementation plan together with limited funding. These problems may well hinder the successful implementation of the single spine reform.

Failure to reach farmers with knowledge and technologies that can enhance potato production and productivity will derail the success of other actors in the value chain.

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3.3 BOOSTING INVESTMENTS IN THE CHILI VALUE CHAIN¹



Section 1: Market signals and their impact on the investments in the Chili value chain

Although the market for Ugandan Chili², in terms of demand and supply between 2010 and 2013 was steady and growing, its performance during 2014 and 2015 has been very bad, specifically for the export market. The volume and value of hot pepper to the export market between 2010 and 2013 was on an increasing trend as were the

local production levels; these reflected the capacity to sustain this market growth. The decrease in 2014 and 2015 was a result of the attack on the crop by the False Codling Moth (FCM) as well as the high Maximum Residue Levels (MRLs) of pesticides used for pest control that exceeded the allowable limit in the European market.

Chili varieties grown for export

Uganda grows hot pepper mainly for export. The most popular varieties, in decreasing order of importance by volume are:

Hot pepper (Scotch bonnet) grown and exported fresh to EU countries. Before the ban Uganda used to export on average about 2,500MT annually.

African Birds Eye Chili, grown and exported dry mainly to The Netherlands. Uganda continues to export with average of ten 20 foot containers per year, i.e. a total of 70 MT.

Long Cayenne and Short Thai grown and exported fresh; average annual exports are about a tenth of those of Scotch bonnet.

Uganda also grows and exports fresh Bullet chilies. Similar volumes to Long Cayenne and Short Thai are exported annually.

Source: AMA (Agribusiness Management Associates)

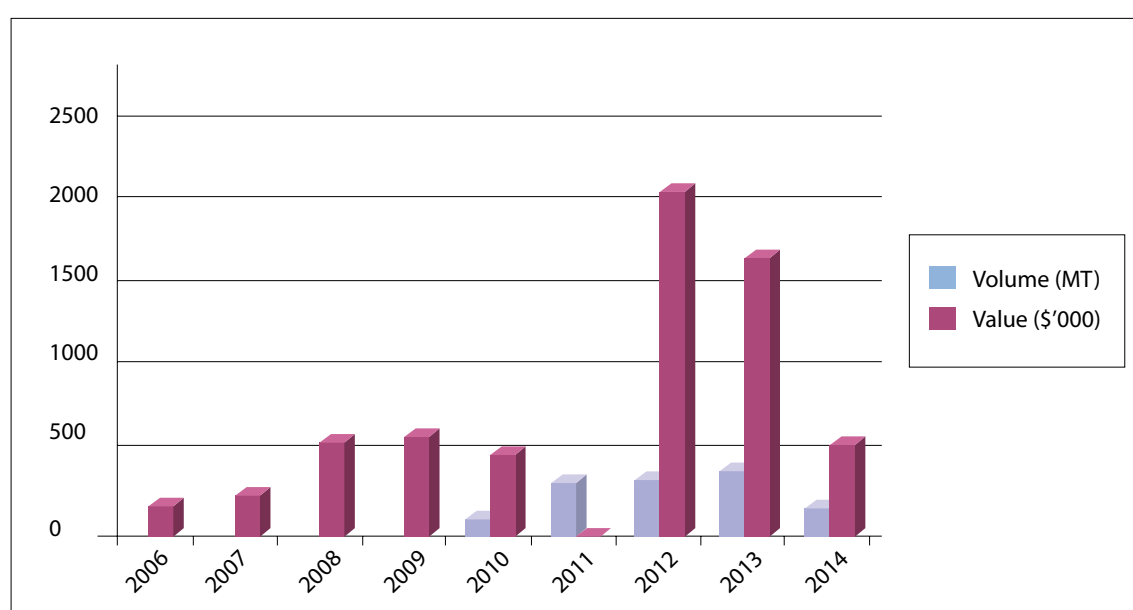
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²This article is restricted to the Scotch Bonnet (Hot Pepper) Chili variety that constitutes the largest volume of Chili produced and marketed in Uganda.

Clearly with over 90 percent of hot pepper produced in Uganda being exported to international markets, with UK and Netherlands taking over 80 percent of the product, the major determinants of the market are the quality of the product and the production levels in other countries that sell into this market. The high phytosanitary standards³ of the European markets must be complied with otherwise the export consignment is intercepted and rejected (at

a very high cost for the exporter) and the exporter may be blacklisted. This therefore constitutes the biggest market risk for this value chain. Besides, the market is characterized by the high and low seasons depending on the supply volumes from different major producing countries, with the good market being realized during winter periods in Europe, when local production levels are low.

Figure 1: Volume and value of Scotch Bonnet exports from Uganda



Source: UEPB (Uganda Export Promotions Board) Statistics for 2014

Thus, in order to mitigate the losses associated with the rejects due to the FCM and high pesticide residue levels, the Ugandan exporters initiated a self-imposed ban on the export of hot pepper in November 2014, in an effort to address the quality issues. This ban persisted for an extended period⁴ and thus gives a negative signal to both Ugandan producers and exporters. Unless expeditiously resolved, this ban will negatively impact the investments in this value chain, as many actors continue to count and accumulate losses.

The situation is equally not helped by the local market that has for a long time not shown any positive signs of growth, since only small quantities are used to produce chili sauce and other hot pepper spices for restaurants, especially in and around Kampala. Moreover, much of the locally produced chili sauce has been mainly made from rejects of low quality pepper that is not exportable.

³ With emphasis on products free of harmful pests and meeting the stipulated minimum pesticide residual levels

⁴ By the time of submitting this article for publication in August 2015

The market demand signal prior to the export ban was not only reflected by the steady increase in volume but also by the relatively stable export prices of hot pepper. These peaked at about US\$15 per 4-kg box.

Section 2: Investment signals and trends

The biggest proportion of hot pepper produced in Uganda is contributed by over 60,000 smallholder farmers, with the crop accounting for less than 10 percent of the overall household agricultural production investments⁵. Thus the average level of commercial production of the crop in terms of acreage is very low compared to many other commercial crops, such as maize, sunflower, bananas, coffee and beans. Similarly, the trading transactions involve

amalgamation of volumes by the exporters' buying agents who basically procure the crop from the smallholder farmers and deliver it to the exporters' bulking points for secondary sorting, grading and packing for export. Because of this situation, the available data on investments at the production and intermediate buying levels of the value chain are scanty. However, the positive trend in export values prior to the export ban point to the fact that the production investments have been increasing as the increase in values is clearly underpinned by the increase in volumes, as is reflected in Figure 1.

The exporter level profitability, that should help to gauge the investment opportunities at this transaction point of the value chain, is summarized in Table 1.

Table 1: Profitability at export level (minimum of 250 boxes per shipment)

Item	Cost (US \$) ⁶
Purchase cost (250x\$2)	500
Primary handling (sorting, packing, etc.) 2%	10
Packaging/Boxes (1 US\$)	250
Transport to airport	40
Airport handling (US \$ 0.118/ Kg including VAT)	130
Clearing	40
Air freight	1,700
Total cost	2,670
Revenue (15\$ x 250)	3,750
Gross Margin	1,080
Return on investment	40.4%

Source: Interviewed exporters and Agribusiness Management Associates (AMA)

⁵ Report of Analysis of Fruits and Horticulture Value Chains in Uganda by aBi Trust (October 2011)

⁶ Average exchange rate: 1 US\$ = UGX 3,500

Though there are fluctuations in the export market price and also escalation in the associated transaction costs, the above return on investment that is achievable within a relatively short transaction period should provide sufficient incentive for increased investment in the value chain, provided the quality parameters are observed and adhered to by the actors in this value chain. It is also noteworthy that the profitability above depends on the minimum volume of the export consignment. As the volume reduces, the costs increase (especially for freight and handling) and thus profitability diminishes and vice versa.

Similarly, the good levels of gross margin and return on investment that are realized at the production level of the value chain that will be highlighted in the next section signal good opportunities for investment in the production of the crop.

Section 3: What is needed to take advantage of the overseas markets – Signals for investments?

Maintaining the quality standard

The quality of the product in the major destination or terminal market is a major signal of the efficiency of the hot pepper value chain. As mentioned earlier, any quality mishaps translate into direct losses for the affected exporters, and in time these feed back through the value chain (farmers, traders, packaging manufacturers, inputs suppliers, etc.).

Therefore investments to address quality standards are a *sine qua non* for effective external market entry and sustenance for Uganda Chili. Such investments need to

focus on enabling the use of proper or acceptable pesticides and correct usage of pesticides, not only for effective control of pests (especially FCM) but also for homogeneity of application of pesticides, such as by collective crop spraying in locations being targeted by an exporter. It is therefore imperative that the key actors in this case (inputs dealers, farmers and workers directly engaging in crop spraying) fairly play the game. Any use of wrong pesticides or improper use of pesticides definitely undermines investment in the value chain. Thus investment in importation or stocking of permitted pesticides (avoiding fake and sub-standard pesticides) and spraying accessories is of crucial importance.

Lowering the transaction costs, building supply reliability and confidence

Besides the high quality market requirements, the issue of seasonal fluctuations in export prices must be carefully considered. In short, the actors in the value chain should always be prepared to absorb and/or reap from any seasonal international price shocks and booms. The measures outlined below may merit consideration in order to minimize the costs of operation and to ensure reliability of supply of the product.

- 1. Production intensification** to enhance productivity, including (where cost-effective) irrigation to ensure continuous and controlled production operations with good quality product;
- 2. Collective operations** for smallholder farmers such as for spraying for pest control to minimize pesticide wastage, ensure uniformity of spraying and minimize produce rejects at sorting and in the export market;

3. **Aggregation of production** (through outgrower and or certified grower schemes) for exporters that should permit regular access to quality or permitted inputs at lower price due to bulk purchases, coordinated farmer training in productivity and effective use of pesticides, lower produce procurement and collection costs, decentralized sorting and grading, enhanced grower peer monitoring for quality adherence, etc;
4. **Consolidation of export volumes** for lower freight cost and/or ultimately permitting freight charter as volumes may allow, or even amalgamation with other commodities where technically possible;
5. Having exporter **agents in the terminal market** to tap into the export market margin and to enhance coordination with the buyers.



Certification or international audit:

High quality and safety of this commodity for the overseas markets can be confirmed by undertaking an international audit for quality standards, like Global G.A.P.⁷, by Ugandan farmers and this may merit consideration for support by the exporters

and/or other stakeholders interested in supporting this value chain. Such a move should definitely help to minimize cases (and the associated risks and costs) of rejects at entry in the export market.

⁷ GLOBALG.A.P. is an internationally recognized set of farming standards specific to Good Agricultural Practices for agriculture and aquaculture.

Section 4: Financing at the different stages of the value chain (status and options)

The financing for the key stages of the value chain (producer and exporter levels) is best illustrated by the transaction activities accomplished at the respective levels and the resultant profitability realized. The exporter profitability analysis in Section 2 is

thus relevant in this case. For the production level, the profitability analysis⁸ is presented in Table 2 and should guide any financing considerations for equity investments and/or financing.

Table 2: Profitability analysis for hot pepper production

Item	Costs/income (UGX)
Seedlings	120,000
Personal protection equipment	17,000
Pesticides	400,000
Tools (Wheelbarrow, panga & hoe)	30,000
Sub-total (inputs and materials)	567,000
Other costs:	
Hiring land (per season)	250,000
Field preparation	150,000
Digging holes	20,000
Planting	75,000
Weeding	120,000
Spraying	50,000
Irrigation	85,000
Manuring	75,000
Mulching	55,000
Harvesting costs	100,000
Transport to home/store	100,000
Sorting	24,000
Cleaning the produce	71,000
Transport to the market/buyer	50,000
Sub-total other costs	1,225,000
Total production costs	1,792,000
Yield (4 kg boxes)	500
Selling price per box	6,000
Total Revenue	3,000,000
Gross Margin (profit before tax)	1,208,000
Gross return on investment	67%

Source: of data: Interviews with producers and AMA

⁸ Some costs such as for tools are amortized to ensure the relevant portion of cost for the season is applied.

The key elements that merit financing are freight costs for exporters and the seasonal working capital needs (inputs and labour costs) for farmers. *While exporters can fairly readily access commercial finance (especially for working capital for freight costs), access to finance by the producers is reported to be highly constrained. The usual challenges for accessing finance for the conventional production level (especially for smallholder farmers) certainly apply to this value chain, including collateral challenges, climatic and market risks, etc.*

Besides the exporters and producers, the other value chain level that should offer opportunity for financing is the inputs supply transaction point for those dealing in the inputs specific to this value chain, such as the permitted pesticides, sprayers, etc. In addition, effective investments to enhance value addition for hot pepper by helping to reduce losses due to rejects at sorting stage can provide opportunities for commercial financing.

It is also important to note that the lack of clear production and export contracts is hindering the effective financing of the hot pepper value chain. Exporters largely rely on export orders (no letters of credit) that may not provide adequate risk mitigation for commercial lenders.

Similarly, the procurement of the crop from the farmers is primarily on a non-contract basis. Without clear commitment on procurement by any specific buyer, the commercial financing of the production level of this value chain is still considered to be highly risky.

Section 5: Challenges

The major challenges for the hot pepper value chain are mainly at the production and export transaction points as outlined (for the respective levels) below.

Production

- Poor management and follow up on the raising of seedlings: Most farmers lack training for this activity and the majority only acquire all the skills through ad-hoc in-field trials and experience.
- Inadequate agronomic practices: Inadequate extension services have led to lack of standard plant spacing advice disseminated to farmers, thereby leading to varying plant populations. This, in the long run, has serious consequences on the yields and cost of production, and diminishes the effectiveness of managing field activities. Also, lack of the required knowledge and skills in the safe use and effective handling of pesticides, including proper disposal of empty pesticide containers, is a challenge in this case. Some chemicals in common farming use are restricted for hot pepper production. Farmers need to be properly sensitized on this, else their product is rejected by buyers.
- Environmental degradation (and even slow human poisoning) especially through poor use and inappropriate handling of pesticides is reported to be common in hot pepper growing areas.
- Lack of basic but appropriate infrastructure, like farm sheds for post-harvest handling, affects and increases post-harvest costs.

- Financing: The high acreage cost of production (about UGX 1.8 million a season) is a constraint, given the fact that the majority of producers are smallholders with multiple household financing needs. This means that they typically have limited cash to meet the front-loaded costs of production, prior to realizing reasonable crop sales revenues.
- Certainty and attractiveness of the export market: With the stiff export market entry barriers relating to quality standards and the overproduction during the high season, the producers have the challenge of lack of certainty of the market for their product and this can be a major setback to any efforts to increase production. This is not helped at all by the near absence of alternative market channels and lack of subsistence utilization.

Exporter Level

- Export market standards: It is clearly vital to meet quality standards especially on pest presence in the fruits (FCM) and pesticide residual levels in excess of allowable maxima. The result is interception of affected shipments with consequent high losses related to cost of destruction and wasted freight costs for the intercepted shipment.
- Aggregating volumes of good quality to meet export orders: With no proper out-grower systems or ring-fenced producers for majority of exporters, their buying agents face procurement challenges as there is no certainty of particular producers being loyal to any

exporter or to that exporter's buying agents.

- Limited funds to finance shipments to export markets. With the freight costs constituting up to 65 percent of the total cost for this level of the value chain and given the fact that this cost must be paid up front, many exporters (especially those with small export operations) have an uphill task to meet this challenge. This may be worsened when delays in remittance of export proceeds for the previous shipment significantly affects the working capital position for subsequent shipments.
- Lack of proper infrastructure such as pack-houses for post-harvest handling (sorting and packing) can also impact the quality of the produce exported. This is especially so for the small exporters and new entrants in this market.
- Foreign exchange risk: Though currently not a major threat given the continuous depreciation of the local currency against the export remittance currencies in the recent past, this is an issue to monitor. However, the short tenure of the export transaction cycle helps in mitigating this challenge.

The challenges outlined above, and others that may not have been addressed because of the continuous dynamics in the value chain, ought to shed light for potential initiatives (including policy interventions) to enhance the competitiveness of Ugandan hot pepper.

Section 6: Current policy environment and recommendations

The Government of Uganda, through the Ministries of Trade and Agriculture, encourages profitable and sustainable investments in the Agriculture Sector. It also puts emphasis on value addition for agricultural products to enhance and diversify profitability of agricultural value chains and increase market competitiveness. Therefore, some of the issues outlined in the previous section have clear policy implications. Ensuring quality of the pesticides, relevant and adequate extension services, strengthening farmer and exporter associations, and enhancing postharvest infrastructure are some of the key areas for enhanced policy targeting. In addition, the issue of compliance with international market standards may not be left to private sector players alone, but rather government must lead the way through clear policy formulation and implementation and other necessary support.

Related to the above, the Ministry of Trade supported the earlier-mentioned self-imposed ban on export of hot pepper and is

actively working with the respective actors in this value chain to address the issues relating to this matter, so that this ban can be successfully lifted.

The other specific recommendations to address the challenges in the hot pepper value chain are:

1. Partnerships with donor programmes and financial institutions to set up **structures at farm level that should help to improve quality** as well as enhancing the capacity of farmers to acquire Global G.A.P. certification;
2. **Supporting investment in irrigation** in order to ensure all-year-round production that should ensure supply reliability and thus enhance the performance on export market orders;
3. **Continuous training programmes** throughout the value chain at planned intervals, and availability of extension staff to assist farmers to address the technical issues as they arise.

3.4 UPDATE ON CAGE FISH FARMING INVESTMENTS IN UGANDA¹



Section 1: Cage Fish Farming

Cage aquaculture is the intensive growing of fish in a fish-net bag which is open at the top, and hung from a floating framework. The net enclosure hangs loose in the water body (lakes, large ponds or reservoirs of an acre or more and in slow-moving rivers) but it is kept taut by the weight of sinkers. In Uganda, the nets are usually 2 to 6 metres in both depth and diameter.

Between 2013 and 2014, the number of fish cages on water bodies in Uganda increased from 1,388 to 2,000 units with average unit production rising from 1.2 to 1.5 tons per cage.

Low volume high density (LVHD) cage fish culture is the system primarily used in Uganda. Fish are raised at high density

in cage volumes of 6 - 18m³ at optimum densities of 200-500 individuals at carrying capacities² of 100-200 kg of fish/m³.

These LVHD are commonly used in Uganda from small-scale to large-scale cage operations as they can easily be carried out in reservoirs and large ponds and fairly eutrophic waters³ closer to shore. As the industry is expanding, High Volume Low Density, (HVLD) are becoming more suited for off-shore deep waters of with better water quality. These are above 18m³ in volume. In Uganda, the LVHD system is a good option for commercial operations that produce up to 1,000 tons/year after which it becomes more economically efficient to produce fish using in cages using HVLD (Poseidon/Cowi, 2011).

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Editor's Note: This update to the cage aquaculture article published in the 2012 Yearbook is warranted as the greater efficiencies now possible, and lower capital costs, have improved potential profits from this type of farming.

² The carrying capacity is the maximum biomass that can be sustained in the cage beyond which issues of water quality, poor health, feed conversions and growth arise.

³ Editor's Note: "Eutrophication" refers to a state where there is excessive nutrient load in the water. This can lead to undesirable levels of plant or algal growth. Algal "blooms", i.e. rapid and extensive reproduction of algae, can be very harmful to farmed fish, and have been experienced in most if not all major cage farming areas: e.g. Norway, Canada, New Zealand. This calls for constant vigilance by the fish farm operator, with the ability to quickly tow the cages out into clear water (at a maximum speed of 0.3 knots or 10m/min) if a bloom starts developing.

Nutritionally complete feeds are a major requirement in cage aquaculture. Three major local producers of fish feeds in Uganda produce extruded floating feeds while other some producers import the feeds from Mauritius. Sinking feeds are available from several local suppliers but require a high level of management to keep the cost of feeding optimal.

The government of Uganda is currently promoting Public Private Partnerships in aquaculture. This is being done through the introduction of Aqua-parks, where all basic farm requirements are set up in a particular area that is environmentally safe. Private proprietors hire production space in return. Currently feasibility studies have been completed in Mwena and Kitobo in Kalangala for cage culture Aqua-parks.

Similarly there are private firms that work directly with the local governments to establish production zones. For example, Kabarole District Local Government partners with a private local company to stock fish in the crater lakes of the district. The Private Sector Foundation Uganda is implementing a matching grant facility to encourage commercially-oriented fish farming.

The major species of interest in cage aquaculture in Uganda is the Nile tilapia, the production technology of which, from seed to table size, is advanced.

For optimal production of fish in cages, the site and water quality parameter that have been found to yield good production results are set out in Table 1.

Table 1: Site selection requirements for cage fish farms in Uganda

Parameter	Recommended Values
Site Characteristics	
Water depth	≥ 0.5 m between cage bottom and bottom sediment. The greater the better.
Water currents	Less than 10 metres/minute
Bottom sediment	Preferably sandy or rocky. Avoid marshy bottoms with decaying organic matter.
Access	Easy access to shore to enable routine management.
Other users	Should not be a gazetted zone for fish breeding or public water transport. The gazette area information can be obtained from MAAIF.
Water Quality	
Dissolved oxygen	5mg/l minimum early morning before 8.00 a.m. on most days.
Turbidity	Secchi reading ⁴ of a minimum of 100 cm, primarily plankton density
Water Temperature (oC)	25 – 30
Organic loading (Total suspended solids and soluble matter)	Minimal. Avoid areas receiving effluent from other sources. e.g. land use
Hydrogen sulphide	None. Maximum safe concentration is 0.002 mg/l
Dissolved Ammonia	0 mg/l
Alkalinity and hardness	>20 mg/l
P H	Diurnal range between 6-8

Adapted from Schmittou, *et al*, 1998.

⁴ **Editor's Note:** Secchi discs have an alternative black and white quadrant pattern. The disc is lowered into the water, and the maximum distance at which the disk can be seen is recorded. The Author specifies 100 cm as the minimum depth for water of sufficient clarity for cage aquaculture.

Section 2: Investments and Returns

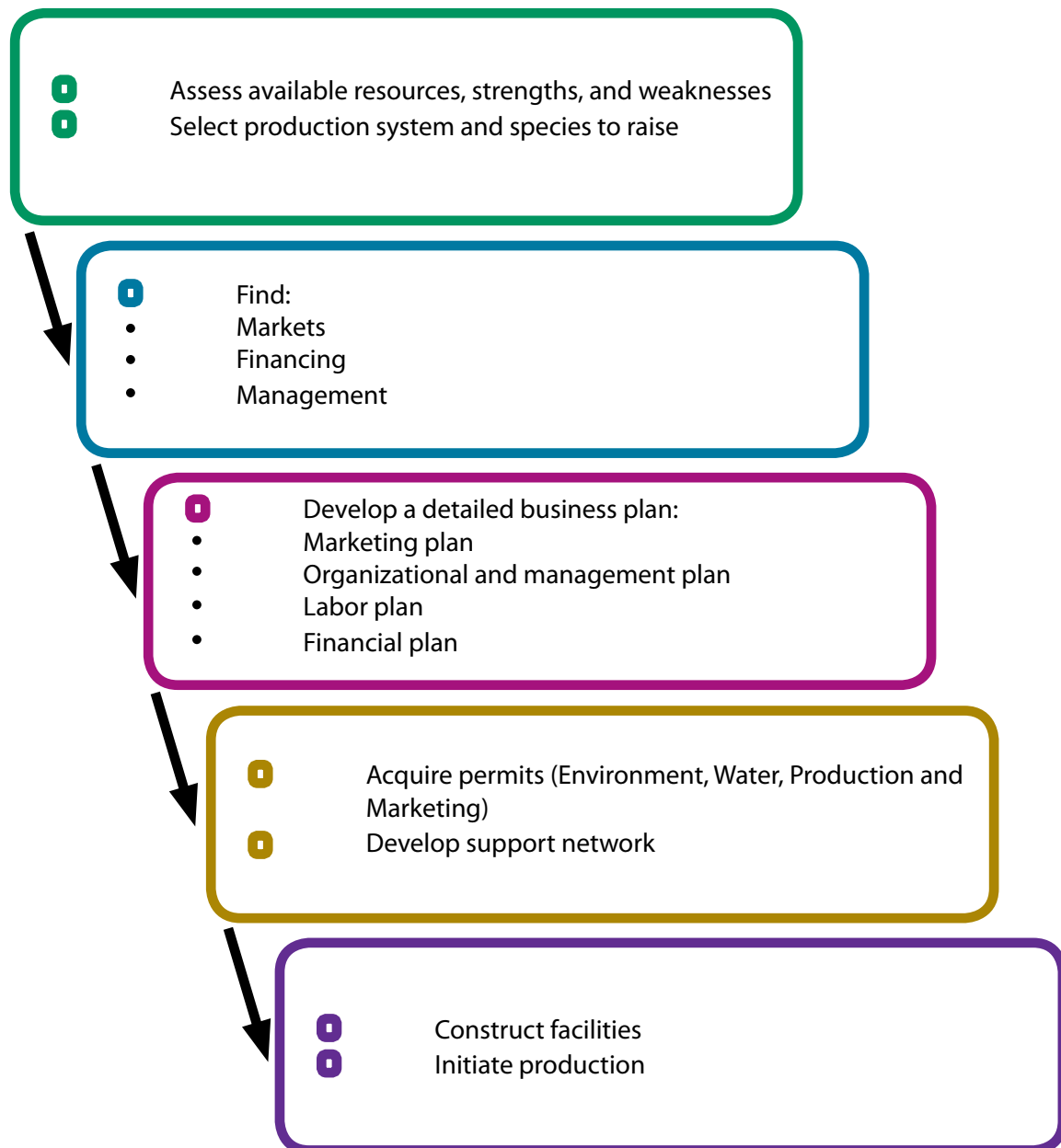
The Process

Aquaculture enterprises require substantial amounts of both operating and investment capital.

The major challenge in starting a cage fish farm as a business is to acquire and maintain sufficient capital. The low survival of fish farms is mainly a result of undercapitalization.

There is need for thorough thought and planning in order to determine the amount of capital needed for establishing and operating the farm efficiently. Therefore identifying secure sources of required capital is a prerequisite in cage aquaculture. The process shown in Figure 1 is a clear step by step process for establishing a successful cage fish farm.

Figure 1: Starting up a cage farm business successfully



Land and Water Transport

Land should be available for on-land farm operations. The needs include storage space for fishing gear, equipment, feeds and sometimes ponds for nursing the young fry to fingerlings before stocking into the cages in the lake. A marketing shade is also part of the land-based facilities. A boat docking area is necessary for access to the lake facilities. This land can be owned or shared, the latter in the case of recognised landing sites or sites crossing navigation routes.

A farm should have at least half an acre of land, with more area in those cases where nursery ponds are required. When this is the case then the area needed will be determined by the number of cages and stocking rates.

Water transport is by wooden canoes; hand paddled or motorized. The latter is common for large cage operations, and is relatively safe.

Confinement

With the advent of several suppliers of **high-density polyethylene nets and twine** that are UV stabilized and can withstand harsh weather conditions, the nylon nets that were locally available and having a life cycle of about 2 years, have been replaced with the blue or green netting from South Africa and China giving over 5 years of use in fresh water. This durability has decreased the overall cage installation cost by almost half from earlier figures.

Similarly, UV stabilized PVC pipes are being used to replace the painted steel frames for holding nets in water. These come with a platform frame and are easy to install. The durability, handling and cleaning properties of the frames have been judged by farmers as impressive. The frames are rectangular

but, as size increases, especially in deep harsh waters, the circular frames should be adopted as they have better current impact absorption properties. Sinkers are made of concrete blocks while buoys and floaters are plastic based. All these can be sourced locally in Uganda.

A feeding ring and predator nets are extras that can be added to the basic cage in order to reduce feed wastage and mortalities, the latter due to predators like otters. Similarly losses from predatory birds (mostly pelicans, storks, hammerkorps and egrets) must be prevented by use of overhead nets that are both strong enough to withstand the total weight exerted during perching to avoid cage collapse, and have a mesh size that is small enough to prevent beaks/bills from probing the fish in the cage. As an example, a single pelican eating 2 pieces of fish per day from a typical cage stocked with 300 pieces, will empty the cage in 5 months or less as fish that escape eventually die from injuries. The locally painted chain-link overhead cage covers are currently replaced with UV stabilized HDPE twine mesh to serve the same purpose with better durability and reduced injury to fish and handlers during farm routine.

Hatchery (Young stock)

The Nile tilapia specie has dominated the cage industry in Uganda. Indeed its production technology is well known and most cages are stocking monosex tilapia. Up to 2014, the Source of the Nile fish farm has been the major supplier of monosex (all male) tilapia seed with an efficiency level of over 95 percent. Currently another farm (Sabra and Sons Ltd.) is producing both mixed sex and monosex for farmers in the country. Both farms run selective breeding programs to ensure quality stock.

Other regional suppliers exist for both tilapia and catfish fingerlings mostly through the regional zonal agricultural development institutes (ZARDI) in central, west, north, east, Karamoja and west Nile. Both seed and extension services can be accessed from these ZARDIs. The stations maintain pure brood stock lines for farmers. Farmers who cannot access the monosex tilapia for stocking have to nurse the fish to about 20g and use visual hand sexing to separate males from females before stocking into the cages.

Feeding

The cost of feed has been increasing over the years, doubling in about 7 years to the current average price 2900 UGX per kg. Farmers have learnt over the years that cost of making on-farm feeds outweighs its advantage of access. Farmers had been using sinking pellets until Ugachick Poultry Breeders Limited introduced **steam extruded floating feeds** in 2010⁵. The wastage from sunk uneaten feeds and their threat as a source of pollution to the environment were addressed. However, farmers still had to be weaned off the use of sinking feeds because the cost of floating feeds and uncertainty of the quality meant that breaking even in this enterprise was a challenge.

As of 2015 the number of floating fish feed manufacturers in the country has increased to three, improving the choice for farmers. One is based in Jinja (Ig Investment Company), one in Matugga (Sabra and Sons Ltd), while Ugachick is based in Majigye (Wakiso). Unconsumed floating pellets can easily be scooped off the water surface and feeding efficiencies are higher because the steam extrusion process renders them more digestible than sinking pellets.

All factories have a feed unit price range of a 2800 to 3000 UGX per kg. Currently with improved feeding techniques, a feed conversion ratio (FCR) of 1.5 has been registered on farms, as opposed to 2, a previously good performance⁶. Thus, despite the fact that the unit cost of floating feed is higher, because feed accounts for about 70 percent of variable costs, the low FCRs result in higher profit margins.

Veterinary Care

Incidences of disease affect farms that are not following best management practices along the production chain. Most diseases start with stress and once stressing factors are controlled; there will be less need for veterinary services. Good water quality, handling and feeding can ensure good health.

- *Hygiene:* All fish-handling containers and nets should be maintained clean and dry.
- To reduce stress, control noises around cages, excessive light and predators (these cause fish to panic and cause physical injury). Optimal levels of oxygen, temperature and pH are important to be maintained and addition of salt in water to maintain osmotic balance of water is sometimes adopted. Before stocking it is necessary to treat all injured fish immediately in salt dip of 3 percent.
- Nutrition related diseases are largely associated with inadequate vitamin C in the diet and farmers should use stabilized vitamin C if feeds are deficient in it.

⁵<http://www.newvision.co.ug/D/8/220/709558>

⁶*Editor's Note:* A Feed Conversion Ratio (FCR) of 1.5 means that it takes 1.5 kg of feed to produce 1 kg of fish. Clearly the lower the FCR, the more efficient and profitable is the operation.



Marketing and transport of produce/ products

Generally all fish on farm is sold fresh as no processing takes place on farm. The fish from major producers in the country is mainly sold to regional traders who trade the fish in Congo, Rwanda and South Sudan. These transport the fish in refrigerated trucks.

Small-scale farmers mostly sell to local markets comprising households, artisan processors, hotels and restaurants. The price range is between 7,000 UGX/kg to 10,000UGX/kg, usually dependent on consistency in size and available total volumes.

Enterprise Performance

Table 2 gives an enterprise budget for an owner operated 10 cage fish farm, with two cycles per year, raising fish to 0.5 kg each at harvest.

While the enterprise is profitable, the farmer should take note that the enterprise budget is highly sensitive to the cost of feeds and the price at which the fish is sold. The farmer should aim at having an FCR of 1.5, which is possible with well managed floating feeds. The amortization of fixed costs is over five years. The farmer should also have enough finance for cash expenses during the production cycles.

Table 2: Enterprise budget for 10 cages, operated as an owner-operated business (UGX)

Assume 500 g fish and 80% survival from original stocking; stocking rate per m ³ is then 200.			
CAGES (bold costs items MOST important)			
Cycles per year	2		
Production: kg/m ³	100		
Cubic meters per cage	18	3m by 3m by 2m	
Cost feed UGX per kg	2,900	range has been 2,800 to 3,000.	
FCR	1.5	range has been 1.5 to 2.5 and even more if sinking feed	
Cost fingerlings, each 10 to 20 g (large males more)	200	now sell at 100 - 200 for a small fingerling	
Price paid for fish/kg	8,000	this is most important. Returns highly sensitive to price	
Labour	400,000	UGX per month for semi-skilled labour	
Investment costs for 10 cages			
Double cage and frame and cover plus floats	25,000,000	One cage is about 2.5 million UGX	
Ropes, anchor, mooring costs	1,500,000		
Life Jackets	350,000		
Fish baskets	60,000		
Boat to use on a series of 10 cages	2,500,000		
Water quality multi-meter (DO, pH, Temp, etc.)	5,000,000		
Engine (5HP)	4,500,000	Optional	
Subtotal fixed (investment)	38,910,000		
Variable costs; one cycle, 10 cages			
Fingerlings, add 25% to cover mortality	9,000,000		
Feed, at FCR and price as above	78,300,000		
Interest on operating for cycle at 27% pa	11,785,500		
Labour (2 individuals can manage up to 50 cages)	9,600,000		
Others (permits; studies, vet, communication etc.)	520,000		
Total variable costs for 10 cages, 2 cycles/yr.	109,205,500		
Revenue per cycle			
Fish sales	144,000,000	Total kg =	18,000
NET above variable costs, per cycle, 10 cages	34,794,500		
NET if amortize fixed costs over 5yrs	30,903,500	Return to owner's management and labour, which are not costed	
For one year, if one gets 2 cycles per year:	61,807,000		
Monthly net to owner-operator (rounded)	5,150,000		

Section 3: Risk Management

The major risks in fish cage culture in Uganda are noted in Table 3.

Table 3: Risk Assessment of Fish Cage Culture in Uganda

Risk	Mitigation Measures
Spread of disease	• Monitor cages daily in order to check mortality • Dip fish from hatchery in 2 ppm KMnO₄ • Treat all physical injuries immediately in a salt dip of 3%. • Minimise stress at all times • Feed nutritionally balanced diets • Set cages in a single file / line • Site cages in areas that meet the specified water quality requirements. • Remove dead fish immediately • Predator control
Genetic infiltration of indigenous wild species	• Farm indigenous species • Endeavour to do ones best and ensure all nets are in good condition.
Poor water quality	• Conduct a site suitability assessment • Size farms based on the carrying capacity of the water body • Feed based on demand, preferably with floating feeds to reduce build-up of uneaten feed • Change location of cages every so often to avoid anoxia buildup at the bottom
Security	• Good public relations • Work closely with Beach Management Units • Hire security personnel

Section 4: Policy

General

The government has reviewed and updated the National Fisheries Policy to 2014. Similarly, the Aquaculture Policy for the country is being formulated. However guidelines on cage farming and conservation of fish breeding areas have already been developed for practitioners.

On the whole, the policy is enabling. Aquaculture operations are governed under the Fisheries Policy, its statutory instruments as well as the Water Use and Environmental Regulations (MAAIF, 2004, Wathum and Rutaisire, 2008).

As already noted by Isyagi 2012, the major issue that needs to be addressed is that, to date, there is no specific permit for aquaculture that specifically addresses the needs of running the enterprise as a private

unit within a largely-open access domain. Thus, securing the premises, preventing fishermen or other water users coming close to cages largely depends on a mutual understanding between community users.

Permits

The following are the permits required to establish and run a cage farm:

1. Aquaculture Establishment Certificate (MAAIF, 2003).
2. Fish Transfer Permit (MAAIF, 2003).
3. Fish Export/Import Permit (MAAIF, 2003).
4. Waste Discharge Permit (MWLE, 1998)
5. Water Abstraction Permit, (MWLE, 1998)
6. Certificate of Approval of Environment Impact Assessment, National Environment and Management Authority (NEMA)

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4

Lending for Agricultural Investment: Some Issues



4.1 RISK MITIGATION MEASURES BY FARMERS AND BY BANKS¹



Section 1: Introduction

Agriculture is widely considered by most financial institutions to be more risky than other sectors of the economy such as industry, trade and commerce, services, etc. As such, financial institutions tend to avoid the provision of finance to agriculture, especially to the smallholder farmers who contribute the largest proportion of agricultural production in developing countries.

Despite this supply side constraint, it is critical to note that the agricultural sector, including smallholder farmers, needs financial services so as to be able to increase land and labour productivities. Moreover, these services for smallholder farmers need to be available in a manner that is sustainable over a long period of time, as opposed to being just one-off interventions.

Section 2: The risks

Agricultural lenders are constantly faced with many different risks to their outreach programmes. According to rural finance specialist, JD von Pischke, risk is the certainty that things do not always work out as planned². Because of the high prevalence of risks, banks and other financial institutions are not certain about loan repayment at the time of advancing loans to farmers. There is thus always the certainty that things will get awry and the farmer will be rendered unable to service his/her loan according to the terms of the contract after all.

Agricultural risks are normally categorized according to hazard, vulnerability and exposure. For purposes of this article, we shall categorize the risks according to those that are manageable by the farmer and those that are more the responsibility of the lender to control.

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² Quote from a presentation by JD von Pischke at Centenary Bank in the 1990s.

The risks that are manageable by the borrowing farmer are briefly described below:

a. Weather risk

Weather or climatic risk is the uncertainty in cash flow and earnings caused by weather volatility. Crops and livestock are highly susceptible to fluctuations in temperature and levels of rainfall. Weather risks are a major source of uncertainty for lenders and borrowers and yet it seems that the variations of temperature and precipitation have increased in the last decade due to global warming. Weather risks have numerous ramifications on the performance of agricultural value chains. Besides the reduction of farm yields, weather risks affect the throughput and turnover of agricultural processors, and the demand for chemicals and fertilizers, as well as for many food products. In Uganda, drought is the event that is most feared by small and large farm holders as well as lenders, because it can result in severe economic losses.

b. Pest and disease risk

These are production risks that result from pest and disease attacks on crops and livestock during the growth cycle. Some diseases are difficult to control while others are so virulent that they can destroy entire plantations in a matter of days. In addition to the physical destruction of crops, pests may also be responsible for the transmission of diseases between different crops, which exacerbates the economic loss incurred by the farmer.

c. Post-harvest risk

Post-harvest risks arise from substandard practices or inadequate conditions during harvesting, transportation and storage of agricultural products. Inadequate handling of products during and after harvest, especially inadequate drying of some crop products, especially grains, can lead to significant losses that disrupt the farmer's cash flow expectations.

d. Input risk

This refers to the risk of purchase of counterfeit inputs by the farmers. The Ugandan market has been flooded with low quality input counterfeits that do not exert the desired effect when applied during farming operations. It is normally very difficult for ordinary farmers to distinguish between genuine and fake inputs by merely viewing their appearance or the packaging. Another input risk is that the farmer misuses the input, thus not gaining the full benefit of the investment. For example, a common mistake in fertilizer use on maize is to apply nitrogenous fertilizer too early, so that much is leached before the plant has a chance to use it. There is a case for instructions on packaging to be provided or to be clearer.

e. Market and price risk

Market risk is the likelihood that there will be no market literally and the farmer will therefore not sell his/her goods after harvest, or will be forced to accept a very low, "give-away" price. Indeed, the prices of agricultural commodities tend to be very unstable as they are dependent on several factors that may include regional or even global production.

These factors are in most cases beyond the farmer's control but when the market price falls below the cost of production, it becomes untenable for the farmer to put their goods on sale. In extreme situations of glut, the demand for the commodity is so poor that the farmer fails to get buyers even at the lowest price in the market.

The following risks are more directly of concern to the lender:

a. Rural risk

A number of risks occur only because the target group of farmers resides in the rural areas. Rural areas are sparsely populated by relatively poor people who have no proper access to basic services such as health and education, which increases the risks to the lender. Another common characteristic of the rural areas is that ownership of land is often not formalized. This leaves the lenders with little traction for realization of securities in case of default.

b. Producer capacity risk

These are risks that are directly related to the technical and or managerial capacity of the farmer. The managerial capacity of a farmer significantly influences his or her ability to produce and market agricultural products. A common example is the difficulty many small farmers have in mobilizing and managing labour, even sometimes from within their families, for urgent farm work.

c. Limited collateral risk

Collateral is usually taken by traditional banking institutions to limit potential loan loss. However, rural-based smallholder

farmers rarely own any formal collateral like land titles or vehicle registration cards. This significantly limits a farmer's ability to access the loan amounts that they desire or the amounts that are proportional to the size of his or her farming business.

d. Character risk

Character risk is used in reference to the probability that a borrower will intentionally do things that will limit the value of the loan contract from the point of view of the lender. Such things include misrepresentation of assets or business, willful non-repayment, and diversion of loan proceeds, among others. The borrower's character has a very significant bearing on his or her attitude towards loan repayment. It is worth noting that financial institutions tend to put more emphasis on other aspects like collateral and financial capacity, which are more readily demonstrated, while neglecting character.

e. Political risk

Political risks in agriculture are manifested in various forms i.e., government intervention in rural-agricultural credit, control of interest rates, loan allocations to "special groups" and interference in loan recovery processes. For instance, individuals who aspire for political office tend to offer promises of "protection" of loan defaulters from the attempts of financial institutions to recover loans. This is commonly seen at the local government level. Political intervention in rural financial markets often generates market distortions, which have long-term, adverse effects on the willingness to repay.



f. Untimely disbursement risk

This is the risk that arises when a financial institution delays the disbursement of a loan to a farmer. This renders the loan unusable for the purchase of necessary inputs and the performance of early farming operations at the start of the farming season. It has to be noted that crop production operations in particular are implemented according to very rigid timetables and any delays in availing funds to the farmer may significantly limit the farmer's ability to achieve optimal yields.

g. Institutional capacity risk

Agricultural production lending is a relatively new area and many financial

institutions still lack the internal capacity to effectively manage and deliver agricultural lending products. Institutional capacity risk relates to the inability of financial institutions to design appropriate agricultural lending methodologies and deliver suitable products that are tailored to the borrower's cash flow situation. This often results in poor loan assessment and poorly structured loans with amortization periods that strain cash flow and repayment ability, thereby forcing the borrower to become noncompliant with the terms of the loan.

Section 3: Mitigating the risks: The farmer

The following table summarizes the measures that the farmer can employ to mitigate the risk of economic loss at the farm level.

Risk	Risk mitigation measures
1. Weather risk	• Use of improved varieties – high yielding, drought resistant varieties • Production enterprise diversification – crop diversification and/or engagement in additional off-farm activities • Better agronomic practices – timely planting, mulching, weeding, pruning • Use of appropriate technologies – rainfall harvesting, drip irrigation, channel irrigation, greenhouse production • Purchase of agricultural insurance – index based weather insurance, livestock insurance products • Contacting agricultural extension workers or veterinarians to complement farmer's knowledge and experience
2. Pest and disease risk	• Integrated pest and disease management – broad-based approach that integrates several practices for control of pests and diseases i.e., preventive cultural practices, mechanical control, responsible use of synthetic insecticides, etc. • Timely vaccination and de-worming of animals, bird scaring
3. Post-harvest risk	• Application of post-harvest management practices that reduce post-harvest losses i.e., timely harvesting, fumigation, rodent control and proper storage facilities
4. Inputs risk	• Purchase of inputs from certified input suppliers • Bulk purchase of inputs by producer organizations
5. Market risk	• Enterprise diversification – reduces impact of price collapse on farmer if there's more than one agricultural enterprise • Joining of marketing cooperatives such as area cooperative enterprises to market in bulk • Irrigation – enables farmer to plant during the dry season and harvest when demand is high • Contract farming arrangements

Section 4: Managing the risks: The lender

The table below provides a summary of the risk mitigation practices that can be used by lenders to manage agricultural risks. It should be noted that risk management should be planned on an ex-ante basis

although some ex-ante plans provide for ex-post actions such as insurance payouts and loan guarantee compensations. Furthermore, some of the risks that are manageable by the farmer are also managed by some lenders and will be reconsidered in the table.



Risk	Risk mitigation measures
1. Weather risk	• Rigorous underwriting standards e.g., strict loan-value ratios, sound collateral evaluations, etc. • Establishment of strategic alliances with development organizations to provide technical assistance to farmers and farmer-groups • Phased disbursements – release of loan funds in tranches upon confirmation to the lender of completion of certain critical production stages by the farmer. • Sale of innovative agricultural insurance products e.g., livestock insurance, index-based weather insurance, etc. • Structuring loans according to the borrower's business cycles to ensure that payment schedules are well aligned to cash flows. • Detailed assessment of creditworthiness and cash flow – avoiding over-reliance on collateral as a source of repayment, use of cash flow projections rather than historical cash flows. • Farmer profiling according to known characteristics e.g. area cultivated, degree of enterprise diversification, etc., and categorizing them according to the amount of risk. • Loan rescheduling – extension of loan repayment terms to a future date when farmer is genuinely affected by an adverse weather event. • Loan guarantees – providing guarantee coverage for borrowers with good performing projects but inadequate security.
2. Market risk	• Value chain-based financing – establishment of structured collaborative partnerships with large agribusiness buyers/off-takers who purchase the borrower's produce at guaranteed contract prices • Sale of innovative agricultural insurance products (usually linked to contract production) • Monitoring of commodity price movements and forecasting based on historical information • Targeting small farmers in farmers' groups / marketing cooperatives • Loan rescheduling – extension of loan repayment terms for borrowers genuinely affected by collapsing market prices.
3. Rural risk	• Strategic alliances with development organizations to effectuate financial literacy programmes for targeted farmers/farmer-groups • Define the type of clients to be targeted among the rural segment i.e., not "poorest of the poor" who are just grant-worthy. Focus on "farmers" rather than "villagers".
4. Producer capacity risk	• Select farmers who are experienced and are producing on a commercial basis, or who are the way to this status. • Establish proactive relationships with agricultural extension agencies to provide regular trainings for producer groups.
5. Limited collateral risk	• Define institutional collateral requirements and select farmers who meet them. • Encourage borrowers to expand their asset base by purchase of real estate assets. • Encourage borrowers to formalize ownership of their assets (through acquisition of land titles, etc.).
6. Political risk	• Avoid 'collaboration' with local politicians when implementing rural-agricultural finance programmes. • Avoid "over-concentration" of credit in a limited area. • Avoid areas with past, failed credit programmes
7. Untimely disbursement risk	• Ensure fast processing of loans and timely disbursement • Encourage farmers to perform early farm operations
8. Institutional capacity risk	• Engage external agricultural credit consultants • Establish strategic alliances with development partners with a leaning towards agricultural finance. • Introduce specialized agricultural finance unit.

Section 5: Policy and other government action

As is well known, agriculture has been the mainstay of Uganda's economy for a long time. In addition to contributing approximately 23% of GDP, agricultural products contribute nearly half of Uganda's foreign exchange earnings. The public sector contribution to the agricultural sector remains very small at less than 4% of the national budget and yet the sector largely employs the poor, especially women and youths in the rural areas. Support to agriculture deserves to be better resourced.

As noted in the foregoing sections, agricultural risks pose the greatest challenge to the achievement of production objectives for both small- and large-scale farmers. Smallholder farmers especially face severe consequences from agricultural risks, which ultimately lead to loss of revenue and exposure to other risks such as health. The Government itself is affected by shocks through reduced income (from taxes) and increased expenditure for emergencies. Large-scale adverse events (e.g. drought) can reduce GDP by 1.7% to 1.8% p.a.

The limited attention given to the sector of agriculture renders the Government unable to address the key area agricultural risk management. develop a comprehensive agricultural risk management strategy or policy framework. The following public sector shortcomings have hindered agricultural effective risk management by both farmers and lenders:

- a. Lack of a clear and comprehensive national agricultural risk management strategy;
- b. Lack of support (e.g. rainfall recording infrastructure) for the development of risk management instruments such as rainfall index insurance;
- c. Inability by Government to put risk management at the core of policy making in Uganda;
- d. Lack of a strong policy that facilitates the formation of marketing cooperatives and other farmers' groups that promote collective marketing of agricultural produce;
- e. Insufficient investment in agricultural technologies and infrastructure that designed to reduce risk exposure for farmers;
- f. Unhelpful Government interference in the agricultural extension service;
- g. Absence of strategic intervention initiatives geared towards minimizing economic losses for agricultural producers.

As noted above, there are no far-reaching policies for the management of agricultural risks at the farm level. More recently however, MAAIF (Ministry of Agriculture, Animal Industry and Fisheries) established a collaborative partnership with the Platform for Agricultural Risk Management (PARM) to mainstream agricultural risk management. As such, the Agricultural Risk Management component has also been included in the Agricultural Sector Strategic Plan (ASSP 2016-2021). The effort presents a great opportunity to develop capacities in the area of agricultural risk management in Uganda, but it is essential that the initiative is adequately resourced.

At the level of the lenders, the Government has come up with some initiatives to tackle agricultural credit risk and make lending to agriculture attractive for financial institutions, although these have been less than effective in many cases. A case in point is the Agricultural Credit Facility (ACF) that was introduced with the intention of providing medium and long-term loans to projects involved in agriculture and agro-processing on more favorable terms than is usually available in financial institutions. Unfortunately, the program has been plagued with many setbacks that include lack of awareness of farmers, restrictiveness of the facility as it supports mainly value-addition projects, and targeting of SMEs while leaving out the small farmers, who comprise the majority of actors in the production subsector.

Lastly, Uganda is well endowed with several water bodies³ in many different parts of the country and it usually has a good supply of rainfall. However, there has been no serious initiative by the Government to invest in irrigation infrastructure or to try to promote localized, even on-farm, water harvesting. This is despite the unreliability of rain seasons in recent years, and the ensuing crop losses.

The costs of irrigation equipment are way too high for the small and medium-scale farmers. However, many water harvesting technologies are also unaffordable for most farmers, which results in millions of cubic metres of rainwater being lost during the rain seasons. Clearly there is scope here for serious study, planning and investment.

³ **Editor's Note:** Some of the major ones are of course subject to the intergovernmental partnership, the Nile Basin Initiative (NBI), involving Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda. This means that access to the waters of the Nile, in particular, would be subject to consultation. See: <http://www.nilebasin.org/index.php/about-us/nile-basin-initiative>

Also the focus of irrigation planning nowadays, in much of Africa, has moved more towards smaller scale irrigation (or "minor irrigation") rather than major schemes such as Gezira in Sudan. Some experts go further and stress the production gains possible by relatively low cost rainfall harvesting. See: <http://www.fao.org/docrep/014/i1861e/i1861e06.pdf>

4.2 BANKABILITY ISSUES WITH AGRI-BUSINESS BORROWERS¹



Section 1: Background

The key concern addressed in this article is the mismatch between the demand and the supply of financial services for agricultural enterprises². This article seeks to demystify the concept of bankability, a key factor that should underpin any efforts to improve access to finance for the sector. It proposes the need for a holistic approach to harmonize the concerns and priorities of financial institutions and those of their agricultural clients.

One of the key challenges often cited by financial institutions (FIs) for lending to agriculture is the unavailability of bankable clients or enterprises in this sector. Thus FIs have often maintained a “high risk” and “high cost” aversion when faced with the option to finance agriculture as evidenced by, among others, the conservative portfolio targets for agriculture in their business and strategic plans. To best contextualize this concern, it is important to approach it from the fact that financial institutions strive to achieve three key elements: 1) minimize risk, 2) minimize cost, and 3) maximize profit.

Often to realize this and also while striving to comply with regulatory requirements, FIs adopt a restrictive perspective and limited criteria to assess the bankability or creditworthiness of agricultural clients. These criteria primarily put emphasis on (of course not in order of priority) character and integrity of the borrower, cash flow strength of the project and from other sources, marketable collateral, market availability for the borrower’s products, verifiable business and banking track record, legal status of the borrower, external risk coverage such as insurance, and the cost of delivering the desired financial services to the client.

Because of the restrictive criteria the FIs’ risk and cost safety net or credit appetite shrinks for agricultural clients, especially smallholder producers and other small scale operators in the value chains. The conventional requirements by FIs in many instances place the bar for accessing finance far beyond the capacity of the clients’ needs and priorities.

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² Agricultural credit accounted for only 11% of formal credit in 2013 (*Agricultural Finance Yearbook 2013/14*)

The mismatch between demand and supply of credit for agriculture, if it has to be sustainably resolved, requires a re-thinking of bankability. It should not be dominated by the FIs, but rather be a collective obligation, involving both sides of the business.

Section 2: Bankability perspectives

Design weaknesses

The agricultural credit mismatch scenario highlighted in the previous section is a result of myths and perceptions between FIs and clients. However, the market for credit (sellers and buyers) should and does operate on realities.

Some of the concerns and perceptions, though genuine, do not reasonably match the realities. They can be addressed through innovation, flexibility and other support mechanisms, which must be properly explored. The gap between the needs of the FIs and those of the agricultural clients that is perpetuated by the divergent bankability perspectives of these two actors in the market is not a default but rather a design one.

For a majority of clients the quality and marketability of collateral (where available) is not attractive, production track records are rarely documented and thus inaccessible, very few businesses and business groups are properly registered, agricultural insurance is still a nightmare, sought loan amounts are often too small to defray lending costs, etc.

In spite of these challenges, that greatly impact the bankability of the agricultural investments and financial services, the demand for agricultural credit for working capital and assets for enterprise expansion

is enormous, particularly propelled by the favourable market opportunities for agricultural products.

What are the financial institutions perspectives?

Financial institutions approach the provision of credit from the basis of certainty of full recovery (principal and interest), with minimum risk and cost, by lending to 'bankable' clients. They seek to verify this certainty by using criteria derived from their credit policy and procedures documents. The criteria, designed not only to adequately mitigate risk but also to enhance compliance with the Basel II parameters of the central bank in assessing the risk weighted assets of regulated FIs, are expected to effectively guide the credit decision-making process. In many instances these criteria do not have elaborate and clearly ranked parameters that can adequately underpin effective assessment but are rather applied subjectively and thus fall short of a core principal of standardization of assessment. The result is that lenders "cherry pick" from the top of the pyramid (i.e. estates, processors, big traders and exporters) that are often well collateralized and enjoy a substantial equity stake. These clients are seen as being eminently bankable.

Therefore, the conventional criteria used by FIs pose more challenges and questions than solutions. A few examples are outlined below:

- Do the product offerings (terms and conditions) by FIs adequately match the realities of the characteristics of the clients? For instance if the client's enterprise, say rice production, does not generate regular cash flows to meet monthly installments payments in the credit design, is it logically justifiable to render this enterprise unbankable?

- Does availability of collateral extinguish risk in all cases anyway? If there is no required marketable collateral, cannot profitability of the project, if properly analyzed, suffice or other collateral substitutes be pursued?
- Do FIs possess adequate skills to properly evaluate agricultural enterprises (in terms of appraisal and analysis) in regard to their set criteria?
- Could FIs evolve innovations to minimize cost of credit delivery to smallholder farmers and other players with low scale of agricultural operations?
- Could financial institutions support some of the processes that enhance client bankability such as business registration, stabilizing the market through hedging and other future options, training in credit management, business plans preparation, etc.?
- Could innovative insurance products for agriculture be initiated and pursued through partnerships between FIs?
- Could FIs on their own initiative generate data to help them to properly and objectively assess the bankability of agricultural value chain actors?
- Could Basel II risk assessment of the quality of bank loan assets be selectively made flexible for agricultural loans e.g. in regard to collateral coverage?

The list can of course be as long as the parameters or requirements in the criteria used by different FIs to assess the creditworthiness of their agricultural clients.

Ironically, in a number of cases, some of the staff of the FIs understand the gaps and challenges of the criteria they use in determining the bankability of the clients they assess and are therefore expected to make lending decisions for. However, they have no option but to comply with the criteria unless changed through institutional policy.

A case in point is where a dairy farmer client who wanted a loan of UGX 25 million (USD 8,000) for farm improvements was disqualified by the bank because he did not have a land title or land purchase agreement (the bank's requirements for collateral) yet this farmer had a farm of 240 acres with a herd of more than 80 cows. To the loan officer who handled this client (he also intimated that many of his colleagues had encountered similar situations), this was a case of a client who should not be ignored. It calls into question the relevance of the lending criteria.

Another major challenge for FIs in assessing bankability of agricultural clients is their reference to the past failed credit schemes, continuing to use these to judge agriculture as risky and unbankable. Without carefully analyzing the causes of such failures from both the FIs and clients' dimensions, and any changed dynamics in the existing environment, this is unjustifiable.

The perspectives of agricultural value chain actors

Many agricultural clients hold the view that their enterprises are bankable, mainly on the basis of profitability. Indeed, from the client's, perspective, profitability should provide a broad picture that reflects availability and strength of the market, experience and skills, commitment of client, etc.

These factors should prevail, rather than requirements such as collateral, business registration and past track record. This latter group of factors is somewhat remote from many profitable farmers. For example many smallholder farmers have no knowledge about land titles. Even if they do have such knowledge, obtaining titles involves inconvenience and high costs.

Table 1: Annual rates of return on investment (ARoI) for some agricultural enterprises

Commodity		Value Chain Actors	ARoI	Commodity		Value Chain Actors	ARoI
1	Rice	Producers	115%	4	Beef cattle	Producers	82%
		Traders	46%			Traders	106%
		Processors	179%			Transporters	104%
2	Arabica Coffee	Producers	188%	5	Sunflower	Producers	203%
		Processors	37%			Transporters	178%
3	Dairy	Producers	164%			Processors	70%
		Transporters	443%				

Source: Studies carried out by the author on behalf of Centenary Bank; the permission of Centenary Bank to publish the data is gratefully acknowledged.

Returning to profitability, many agricultural investments are profitable, **with annual rates of return on investment (ARoI)** much higher than typical commercial lending rates and are thus capable of supporting commercial financing. Table 1 for example highlights the results from recent value chain analyses of selected agricultural commodities. The data point strongly to high levels of bankability.

The challenge, however, is whether FIs generate or access such information as they assess the bankability of agricultural businesses. Thus the asymmetry of information substantially impacts the assessment of bankability. The classic example of the dairy farmer in the previous section is a clear example for this client to firmly assert himself to be bankable, against the reverse opinion of the bank. Therefore the simple questions to ponder in this case are:

- Could this client get the required money from other sources if the bank is not responsive? For example, could he be a prime client of informal lenders, in a worst case situation?
- Would this client have the energy and courage to seek credit from this bank

again or even sustain any existing relationship with it?

As a result of the divergent perceptions on bankability, FIs and agricultural clients continue to make complaints against each other about the bad situation of access to finance i.e. about who is and who is not playing their roles. This has gradually degenerated into emotional, often strident calls for establishment of an agricultural bank, and negative perceptions amongst clients about formally saving with FIs.

Although the agricultural clients' perspective about bankability appears to be logical, these clients must also be made aware that the formal financial sector is regulated and the institutions therein operate in a commercial sense to meet their shareholders' expectations and therefore must exercise maximum caution towards risk, by ensuring prudence in lending. For example the requirement for legal operations may not be circumvented lest it becomes reckless lending. If a farmer cooperative or farmer group is not **legally registered** how can it borrow? Is registration impossible anyway or it's a question of awareness and seriousness? Even if it is

legally registered, the group will need to justify its attractiveness to FIs by presenting a bankable **business proposition and business plan**. Or if an agricultural trader is **not licensed**, how can s/he borrow even if the business is profitable and the required collateral is available? In this regard the bankability gap on the part of the clients cannot be down played and is often manifested.

Other support entities' perspectives

Of course many support entities³, through their mandates, have roles to play in steering the growth agenda for the agricultural sector. These roles may range from policy to other direct interventions with agricultural value chain actors and/or FIs. As such they have impact on the bankability in regard to accessing finance by way of addressing the risks, costs and convenience of access concerns of FIs and clients. For example there are **policy gaps** that if addressed with proper focus on improving access to finance would enhance bankability from both FI and clients perspective. The list is likely to be long but these deserve attention and support: enabling environment for business registration especially for farmer groups and farmers' cooperatives, agency banking, contracts enforcement, collateral substitutes (e.g. chattels), agricultural insurance, guarantees to cushion agricultural credit risk, public investment to enhance productivity and market access, flexible regulations for FIs in respect to agricultural credit, climate change adaptation and mitigation, and affirmative agricultural credit fiscal incentives for both FIs and clients.

Besides policy, many support entities really understand that the issue of bankability is a challenge for both FIs and clients. However,

the main challenge, and thus a recipe for **bankability gap**, appears to be what weight to exert in addressing the specific bankability issues since many FIs even don't have a weighted or scored criteria. In this way many think that by offering capacity building in areas of productivity and business plan preparation, for example, makes farmers bankable. Others think that by supporting FIs' outreach, enhancing their skills in agricultural lending or even linkage of clients to FIs, enhances bankability. True, such efforts can and are definitely improving bankability but to what degree are they offered and by what scale does bankability improve? In other words is the growth in agriculture loan portfolios in tandem with the past and ongoing initiatives by the support entities?

Therefore, if the bankability gap is not narrowing significantly for the agricultural sector players, there is a need to redefine or refocus the bankability criteria and approach. The recommended strategy is discussed in the next section.

Section 3: Addressing the challenges to enhance bankability

Key points

From the discussion in the previous sections inference can be made that bankability stems from five key aspects:

- Inability of FIs to properly manage their evaluation criteria (while assessing bankable clients) and properly aligning the criteria to the needs and realities of the clients being assessed.
- The inadequacies in the FIs' products that mismatch the clients' needs and capacities.

³For purposes of this article the entities include government agencies, donor programs, development partner organizations, other NGOs and service providers.

- Information asymmetry amongst FI and clients on what reasonably determines bankability, and about the available bankable opportunities and financial products.
- Policy and regulatory challenges that constrain agricultural credit delivery and recovery.
- The anecdotal or firefighting approach to addressing bankability by support entities e.g. the discrete focusing on productivity, market access, PO strengthening, etc. for the clients and/or product development, outreach support, skills enhancement, etc. for the FIs.

If the above issues are collectively and comprehensively addressed then bankability for agricultural credit will be enhanced. However, the strategy and approach to address them becomes paramount. Ordinarily, if stakeholders have to act unilaterally, the impact will be minimal as these issues have a multi-stakeholder dimension that must be collectively harmonized. In other words managing the bankability dimensions requires adopting a multi-stakeholder approach to bridge the gaps. This may not necessarily mean that all the stakeholders must act together on a particular issue impacting bankability but rather the need for coordination of the interventions by the respective stakeholders so that these interventions are coherent and well aligned to the expectations of both FIs and the clients. For example FIs must liaise with clients and other support entities on the criteria they intend to apply to assess project bankability and where possible obtain objective comments on the relevance and applicability of these criteria.

It is now important to apportion the roles to the respective stakeholders, as discussed below.

Role of financial institutions

Basically FIs need to re-examine their criteria and strengthen their capacity to assess bankability of the clients. This should include:

1. Refining the assessment criteria, preferably scored, for relevance to clients' needs and circumstances;
2. Re-aligning their products' offering to clients' needs and where necessary developing new ones, and diversifying the range of the products;
3. Improving the skills of staff to properly assess bankability of agricultural clients;
4. Exploring flexible alternatives such as for collateral;
5. Increasing their understanding of the agricultural value chains' transactional relationships and efficiencies;
6. Providing non-financial services to their clients to enhance specific areas of weakness for bankability, including dissemination of credit information on product terms and requirements;
7. Enhancing partnerships and collaboration with other stakeholders and lower tier FIs that can help them to reduce risk and cost of lending to agriculture;
8. Broadening outreach to minimize delivery and access costs and inconvenience;
9. Engaging policy makers and regulators for flexibility on policies and regulations that constrain bankability from the FIs' perspective.

Role of agricultural value chain actors

FI clients should not only concentrate on realizing profitable undertakings but should also focus on enhancing the environment within which their business (including farm production) is conducted. Some examples follow:

1. For small operators such as smallholder farmers, aggregation of activities such as collective marketing, consolidated inputs procurement and aggregating demand for mechanized operations and hired labour through producer groups or cooperatives can substantially enhance bankability. Some of these initiatives have been tested in dairy, tea, maize, barley and coffee and they actually work in terms of improving access to finance. Therefore there is no need for innovation or reinventing the wheel but rather replication of successful existing initiatives.
2. Negotiation of production and supply contracts that can be assigned to FIs;
3. Selection of enterprises with good stable markets, capable of providing pull and push effect to build a mass of critical actors in the value chain;
4. Enhancing credible governance and management of their organizations;
5. Ensuring legal compliance such as trading and other operational licenses and registration of businesses and groups;
6. Enhancing relationships with FIs such as through regular savings and inquiry about available credit opportunities;
7. Partnering with support entities that can enhance quick realization of these initiatives.

Role of other support entities

The role of these entities should actually be to enhance the capacity of both FIs and borrowers to strengthen their bankability by addressing specific identified gaps, such as those outlined in the previous sub-sections. This may be through direct support activities such as improving farm-level productivity and market access, strengthening producer groups or cooperatives and enhancing their compliance with legal requirements such as for registration, supporting business models that enhance structured trade financing mechanisms and bankability such as production contracts and the mechanisms to enforce them, out grower operations, affordable insurance schemes, etc. or influencing the policy environment to realize them.

Other important areas for support include financial literacy, and other business development support initiatives such as preparation of business plans, records management and basic financial planning and management, and facilitating information flow about identified opportunities for provision and accessing finance between FIs and clients.

On the FIs side, the nine focal areas identified earlier should merit support by way of financial and technical cushioning and lobbying for enabling policies and regulations. This is because FIs may not be willing or able to invest in addressing them as the costs involved are often very high or they may lack the requisite technical capacity to successfully pursue them.

The emphasis here is the collectivization and coordination of the interventions to overcome the problem of piecemeal and unilateral initiatives that are often pursued with minimal impact. FIs should be part of the national Agricultural Finance Platform⁴, to be able to voice their challenges in agricultural finance.

Section 4: Policy implications

There is need to ensure a dynamic and broadly focused policy and regulatory environment for enhanced bankability of agricultural value chain enterprises. It should be balanced to embrace the concerns of all the actors in the provision and use of financial services. This calls for:

- Proactive policies that adequately and positively address bankability

challenges from both perspectives of FIs and clients in a sustainable manner. For purposes of consistence, the key areas earlier outlined (see sub-section on other support entities perspective) are highly relevant.

- High responsiveness in addressing identified key policy areas and thus putting in place relevant operational policies.
- Policies must support the bankability of agricultural enterprises by way of stimulating and maintaining a dynamic agribusiness environment and minimizing risks arising from operational challenges and enterprise inefficiencies, such as poor quality inputs and outputs, and disease outbreaks.

SNV⁵ experience and interventions to enhance bankability

SNV and other entities are supporting agricultural producer cooperatives and agribusinesses in the different regions in Uganda, through capacity building, training, mentoring and coaching in different areas. These include preparation and presentation of bankable business plans, to increase bankability scores and so enhance attractiveness to financial services providers. In addition, SNV is preparing a rating tool that is going to be used to assess the bankability of agricultural producer cooperatives and agribusinesses in the different agricultural value chains in Uganda, for example livestock, dairy, oilseeds and coffee. This will be done to support FIs to more readily identify and prospect a sustainable pipeline of bankable agribusiness propositions in Uganda.

To improve focus and response to Uganda's agricultural finance challenges through a coordinated approach, SNV has facilitated the creation of a national Agriculture Finance Platform in Uganda, which is being hosted by the Uganda Agribusiness Alliance. In the absence of a 'home' for agricultural finance in Uganda, this platform also seeks to overcome fragmentation of efforts and uncertainty over agricultural finance policy and priorities. It also seeks to contribute to a more efficient use of the resources available for agricultural finance.

⁴The Agriculture Finance Platform builds upon some of the functions that previously were undertaken by the now concluded PMA Subcommittee on Agricultural Finance, for example coordination

⁵ SNV is the Netherlands Development Organization

List of Abbreviations and Acronyms

aBi Trust	Agribusiness Initiative Trust (of which aBi Finance is a part)
ADB (AfDB)	African Development Bank
AFAP	Agricultural Finance Action Plan
AFI	Alliance for Financial Inclusion
AFS	Agricultural finance services
AGOA	African Growth and Opportunity Act (US legislation)
AMA	Agribusiness Management Associates
AMFIU	Association of Microfinance Institutions of Uganda
ASCA	Accumulating Savings and Credit Association
ATM	Automated teller machine
bn	Billion
BoU	Bank of Uganda
BUL	BIDCO Uganda Ltd.
CBO	Community-based organization
CGAP	Consultative Group to Assist the Poor
CGF	Construction Guarantee Fund (CrossRoads/aBi)
CGIAR	Consultative Group on International Agricultural Research
COMESA	Common Market for Eastern and Southern Africa
COREC	Coffee Research Centre
CORI	Coffee Research Institute
CRDB	CRDB Bank Plc, formerly the Cooperative Rural Development Bank (Tanzania)
CRS	Catholic Relief Services
CSO	Civil society organization
Danida	Danish International Development Agency
DDA	Dairy Development Authority a statutory body under MAAIF

DFBA	Dairy farmer business association (ref. Dairy Hubs in Uganda, Kenya, Rwanda)
DFCU	Development Finance Corporation of Uganda
DFID	Department of International Development (UK)
DFS	Digital financial services
DP	Development partner
DSIP	Development Strategy and Investment Programme - MAAIF
EAC	East African Community
EAS	East African Standard
EFT	Electronic funds transfer
EU/EBA	European Union initiative facilitating trade with Least Developed Countries
FAO	Food and Agriculture Organization of the United Nations
FAQ	Fair average quality – coffee
FCM	False codling moth
FI	Financial institution
FICA	Farm Inputs Care Centre Ltd (a Ugandan seeds company)
FoB	Free on board (FoB/R is free on board rail; FoT is Free on Truck)
FSD	Financial System Development Programme (BoU/GIZ)
FSP	Financial service provider
GAP	Good agricultural practices; GLOBALG.A.P. is an internationally recognized set of farming standards specific to Good Agricultural Practices for agriculture and aquaculture.
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (formerly GTZ, DED and Inwent)
gmc	Grain moisture content
GMO	Genetically modified organism
GoU	Government of Uganda

GPS	Global positioning system; use of satellite coordinates to fix a position on land or water
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH (German Technical Cooperation) From 2011 GTZ has merged into GIZ – see above.
ICO	International Coffee Organization
ICT	Information and communications technology
IDP	Internally displaced person(s)
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFPRI	International Food Policy Research Institute
IFRS	International Financial Reporting Standards
ILO	International Labour Organization (a UN specialized agency)
INGO	International non-governmental organization
ISO	International Organization for Standardization
ISTA	International Seed Testing Association
IT	Information technology
kg	Kilogramme
KYC	‘Know your customer’ a basic tenet of successful banking
LC	Letter of credit
LG	Local government
LRA	Lord’s Resistance Army (rebel group that formally operated in Northern Uganda)
m	metre
M	(of currency) million
M&E	Monitoring and evaluation
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MBWin	FAO/GTZ Microbanking System (MIS)
MDI	Microfinance Deposit-Taking Institution (Tier 3 financial institution)

MF	Microfinance
MFI	Microfinance Institution (Tier 4 financial institution)
MFPED	(Also MoFPED) Ministry of Finance, Planning and Economic Development
MFW4A	Making Finance Work for Africa Initiative
MIS	Management Information System / Market Information System
MNO	Mobile network operator
MoFPED	See MFPED above
MRL	Maximum residue levels (of pesticides)
MSME	Micro, small and medium enterprises (see also SME)
MT	Metric tonne, 1,000 kg
MTIC	Ministry of Trade, Industry and Cooperatives, or
MoTIC	Ministry of Trade, Industry and Cooperatives
NAADS	National Agricultural Advisory Services
NARO	National Agricultural Research Organization
NDP	National Development Plan
NGO	Non-governmental organization
NRM	National Resistance Movement (the ruling party in Uganda)
NSCS	National Seed Certification Service
p.a.	Per annum/year
PAR	Portfolio at Risk
pcm	Per calendar month
PFI	Participating financial institution (used in ACF)
PMA	Plan for the Modernization of Agriculture
PMS	Performance Monitoring System (for Tier 4 institutions in aggregate)
PMT	Performance Monitoring Tool (for Tier 4 institutions)
PO	Producer Organization

POS	Point of sale – for card-based purchases at stores and for digital financial transactions
PPP	Public-private partnership
PRDP	Peace, Recovery and Development Plan – for Northern Uganda
PRSP	Poverty Reduction Strategy Paper – World Bank
PSI	Pre-shipment inspection (e.g. of agricultural machinery)
PVP	Plant variety protection
R&D	Research and development
RCF	Rural Challenge Fund (aBi/KfW)
RFEP	Rural Finance Enhancement Programme (Germany/Uganda)
RFSP	Rural Financial Services Programme (GoU/IFAD)
RFSS	Rural Financial Services Strategy
ROSCA	Rotating savings and loan association
SACCO	Savings and Credit Cooperative (Tier 4 financial institution)
SHG	Self-help group
SME	Small / medium enterprise
SMS	Messages sent over cellphone networks i.e. “short message service”
SNV	Netherlands Development Organization
SPS	Sanitary and Phyto-sanitary
TBT	Technical barriers to trade
UBOS	Uganda Bureau of Statistics
UCA	Uganda Cooperative Alliance
UCDA	Uganda Coffee Development Authority
UCE	Uganda Commodity Exchange
UCTF	Uganda Coffee Trade Federation
UDB	Uganda Development Bank
UEPB	Uganda Export Promotions Board
UGX	Uganda Shillings (also UShs)

UIBFS	Uganda Institute of Banking and Financial Services
UN	United Nations
UNADA	Uganda National Agro-input Dealers Association
UNBS	Uganda National Bureau of Standards
UNCDF	United Nations Capital Development Fund
UNCTAD	United Nations Conference on Trade and Development
UNFFE	Uganda National Farmers Federation
URA	Uganda Revenue Authority
USAID	United States Agency for International Development
USD	United States Dollar – also US\$
USTA	Uganda Seed Trade Association
UTZ	UTZ Certification relates to assurance that a given commodity was produced with care for the producers as well as for the environment
VAT	Value Added Tax
VODP	Vegetable Oil Development Project (GoU/IFAD)
VSLA	Village savings and loan association
WFP	World Food Programme
WHO	World Health Organization of the United Nations
WII	Weather Index Insurance
WRS	Warehouse Receipt System
WTO	World Trade Organisation
WHO	World Health Organization of the United Nations
WII	Weather Index Insurance
WRS	Warehouse Receipt System
WTO	World Trade Organisation

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